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**IEEE P802.19**  
Wireless Coexistence Working Group

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Re:	
Abstract	This file updates the full proposal in response to Call for Proposals (P802.19-10/57r2). It uses IEEE draft standard template.
Purpose	To propose updated full proposal text for P802.19.1 draft standard
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Release	The contributor acknowledges and accepts that this contribution becomes the property of IEEE and may be made publicly available by P802.19.

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# 1 Contents

2	1. Overview .....	1
3	1.1 Scope .....	1
4	1.2 Purpose .....	1
5	2. Normative references.....	1
6	3. Definitions, Abbreviations and Acronyms .....	1
7	3.1 Definitions .....	2
8	3.2 Abbreviations and Acronyms .....	2
9	4. System Description.....	2
10	4.1 System Architecture .....	2
11	4.2 Logical entities .....	3
12	4.3 Logical Interfaces .....	4
13	5. IEEE 802.19.1 reference model.....	5
14	5.1 General description.....	5
15	5.2 Service access points .....	7
16	5.3 Data types .....	20
17	6. Procedures and protocols.....	49
18	6.1 Procedures .....	50
19	6.2 Messages.....	63
20	7. Coexistence mechanisms and algorithms .....	73
21		
22		

# 1 TV White Space Coexistence 2 Methods

## 3 1. Overview

### 4 1.1 Scope

5 The standard specifies radio technology independent methods for coexistence among dissimilar or  
6 independently operated TV Band Device (TVBD) networks and dissimilar TV Band Devices

### 7 1.2 Purpose

8 The purpose of the standard is to enable the family of IEEE 802 Wireless Standards to most effectively use  
9 TV White Space by providing standard coexistence methods among dissimilar or independently operated  
10 TVBD networks and dissimilar TVBDs. This standard addresses coexistence for IEEE 802 networks and  
11 devices and will also be useful for non IEEE 802 networks and TVBDs.

## 12 2. Normative references

13 The following referenced documents are indispensable for the application of this document (i.e., they must  
14 be understood and used, so each referenced document is cited in text and its relationship to this document is  
15 explained). For dated references, only the edition cited applies. For undated references, the latest edition of  
16 the referenced document (including any amendments or corrigenda) applies.

## 17 3. Definitions, Abbreviations and Acronyms

1 **3.1 Definitions**

2 **3.2 Abbreviations and Acronyms**

3 **4. System Description**

4 **4.1 System Architecture**

5 The 802.19.1 system architecture has three logical entities and five logical interfaces. An 802.19.1 logical  
6 entity is defined by its functional role(s) and its interfaces with other 802.19.1 logical entities and with  
7 external elements.

8

9 Three logical entities are:

- 10 — Coexistence Manager (CM)
- 11 — Coexistence Enabler (CE)
- 12 — Coexistence Discovery and Information Server (CDIS).

13

14 Five logical interfaces are:

- 15 — Interface A
- 16 — Interface B1
- 17 — Interface B2
- 18 — Interface B3
- 19 — Interface C.

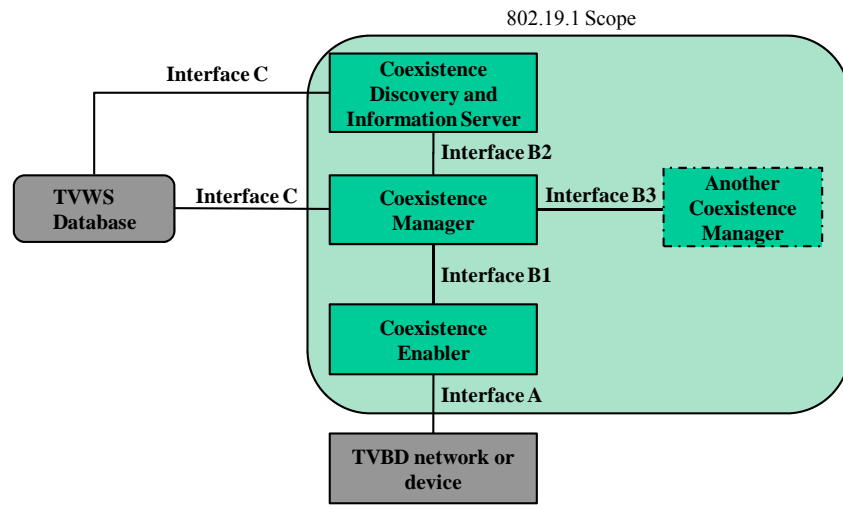
20

21 The 802.19.1 system interacts with two external elements:

- 22 — TVWS database
- 23 — TVBD network or device.

24

25 Figure 1 shows 802.19.1 system architecture.



1

2

**Figure 1 System Architecture**

3

**4.2 Logical entities**

4

**4.2.1 Coexistence Enabler**

5

Coexistence Enabler has the following functional roles:

6

— Obtain information required for coexistence from TVBD network or device and provide it to CM

7

— Provide information required for coexistence (generated by IEEE 802.19.1 system or obtained by IEEE 802.19.1 system from external entities) to TVBD network or device

8

— Facilitate sharing of information required for coexistence among TVBD networks or devices via the IEEE 802.19.1 system

9

— Request TVBD network or device to perform measurements required for coexistence by itself or according to commands received from CM

10

— Obtain measurement results required for coexistence from TVBD network or device and provide them to CM

11

— Request TVBD network or device to perform reconfiguration required for coexistence according to commands received from CM

12

— Receive information about observed or predicted events related to coexistence from TVBD network or device and provide it to CM

13

— Provide information about observed or predicted events related to coexistence (generated by IEEE 802.19.1 system) to TVBD network or device.

14

15

**4.2.2 Coexistence Manager**

16

Coexistence Manager has the following functional roles:

17

— Coexistence decision making

18

— Discovery of other CMs

19

— Support exchange of information required for coexistence among CMs

20

- 1 — Support sharing of information required for coexistence among TVBD networks or devices.

## 2 **4.2.3 Coexistence Discovery and Information Server**

3 Coexistence Discovery and Information Server has the following functional roles:

- 4 — Support discovery of CMs
- 5 — Collect, store, aggregate, and provide information required for coexistence
- 6 — Support exchange of information required for coexistence among CMs
- 7 — Support sharing of information required for coexistence among TVBD networks or devices.

## 8 **4.3 Logical Interfaces**

9 Five logical interfaces defined in the 802.19.1 system architecture can be split into three groups:

- 10 — Interfaces between 802.19.1 entities:
  - 11 — Interface B1
  - 12 — Interface B2
  - 13 — Interface B3
- 14 — Interface between an 802.19.1 entity and TVBD network/device:
  - 15 — Interface A
- 16 — Interface between 802.19.1 entities and TVWD database:
  - 17 — Interface C.

18  
19 Different interfaces in each group are distinguished by their usage, types of information exchanged, and  
20 underlying protocols.

### 21 **4.3.1 Interface A**

22 Interface A between CE and TVBD network or device is used to transmit the following:

- 23 — From TVBD network or device to CE:
  - 24 — Information required for coexistence
  - 25 — Measurement results required for coexistence
  - 26 — Information about observed or predicted events related to coexistence
- 27 — From CE to TVBD network or device:
  - 28 — Information required for coexistence (generated by IEEE 802.19.1 system or obtained by IEEE
  - 29 802.19.1 system from external entities)
  - 30 — Measurement requests required for coexistence
  - 31 — Reconfiguration requests required for coexistence
  - 32 — Information about observed or predicted events related to coexistence (generated by IEEE 802.19.1
  - 33 system).

### 34 **4.3.2 Interface B1**

35 Interface B1 between CE and CM is used to transmit the following:

- 1 — From CE to CM:
- 2 — Information required for coexistence
- 3 — From CM to CE:
- 4 — Reconfiguration commands required for coexistence.

### 5 4.3.3 Interface B2

6 Interface B2 between CM and CDIS is used to transmit the following:

- 7 — From CM to CDIS:
- 8 — Information required for discovery
- 9 — Information required for coexistence
- 10 — From CDIS to CM:
- 11 — Information required for discovery
- 12 — Information required for coexistence.

### 13 4.3.4 Interface B3

14 Interface B3 between different CMs is used to transmit the following:

- 15 — Information required for coexistence.

### 16 4.3.5 Interface C

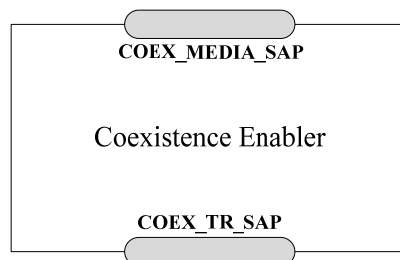
17 Interface C between CM and TVWS database or between CDIS and TVWS database is used to transmit the  
18 following:

- 19 — From TVWS database:
- 20 — Information required for coexistence.

## 21 5. IEEE 802.19.1 reference model

### 22 5.1 General description

23 Figure 2 illustrates reference model of Coexistence Enabler.

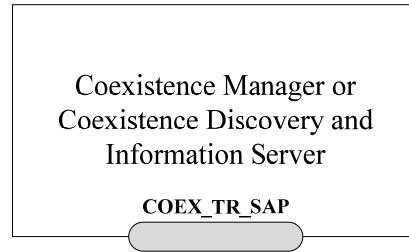


24

25 **Figure 2 Reference model of Coexistence Enabler**

26 Coexistence Enabler has two service access points:

- 1 — Coexistence Media SAP (COEX\_MEDIA\_SAP)
- 2 — Coexistence Transport SAP (COEX\_TR\_SAP).
- 3 Figure 3 illustrates reference model of Coexistence Manager and Coexistence Discovery and Information Server.
- 4



5

6 **Figure 3 Reference model of Coexistence Manager and Coexistence Discovery and Information Server**

7

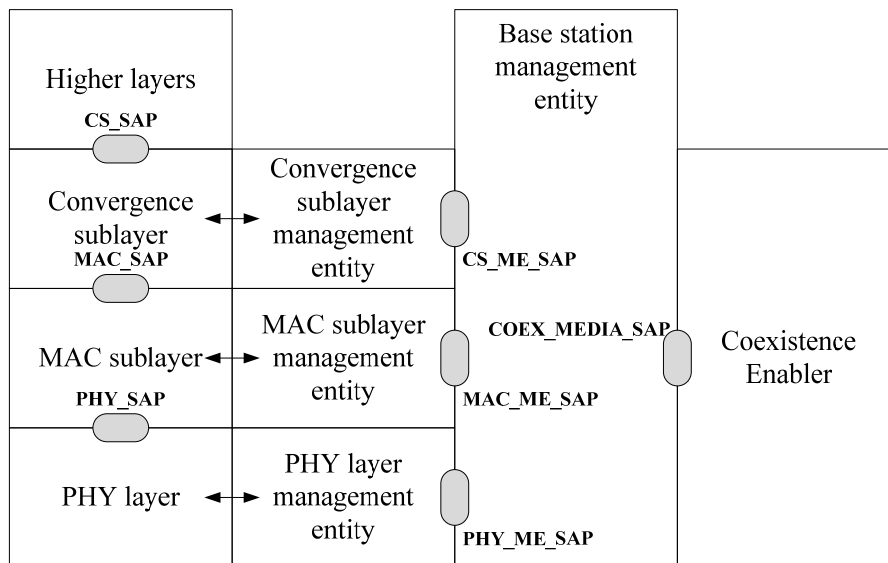
8 Coexistence Manager and Coexistence Discovery and Information Server have one service access point:

- 9 — Coexistence Transport SAP (COEX\_TR\_SAP).

10

11 COEX\_MEDIA\_SAP defines the interface A between CE and TVBD network/device. Example reference model of CE describing example implementation of interface A inside a base station is shown in Figure 4.

12



13

14 **Figure 4 Example reference model for interface A**

15 The left side of Figure 4 shows typical reference model of radio interface including data, control and management planes for physical layer, MAC sublayer, and convergence sublayer. The middle part of Figure 4 shows base station management entity. The right part of Figure 4 shows CE.

16

17 Typically, radio interface is implemented in such a way that it provides management interface for base station management entity. In Figure 4, such interface is represented by three service access points PHY\_ME\_SAP, MAC\_ME\_SAP, and CS\_ME\_SAP, corresponding to physical layer, MAC sublayer, and

18

19

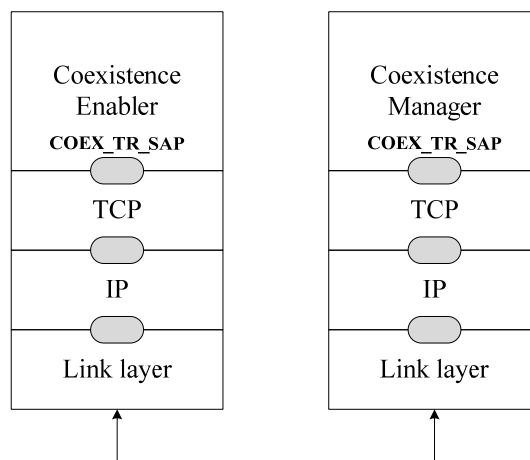
20



1 convergence sublayer. This service access points can be used to obtain information from radio interface and  
 2 to request reconfiguration of radio interface. Correspondingly, CE can use these service access points to  
 3 implement interface A. Interface A is defined by service access point COEX\_MEDIA\_SAP.  
 4 Communication between radio interface management service access points PHY\_ME\_SAP,  
 5 MAC\_ME\_SAP, and CS\_ME\_SAP and CE service access point COEX\_MEDIA\_SAP is done via base  
 6 station management entity.

7

8 COEX\_TR\_SAP provides means for Coexistence Enabler, Coexistence Manager, and Coexistence  
 9 Discovery and Information Server to communicate with each other and with external entities by using  
 10 transport services provided by underlying layers. The underlying layers could be application layer,  
 11 transport layer, network layer, and link layer. Example reference model of CE and CM describing example  
 12 of using COEX\_TR\_SAP for interface B1 is shown in Figure 5.



13

14 **Figure 5 Example of using COEX\_TR\_SAP for interface B1**

15 Information required for coexistence and reconfiguration commands that are exchanged between CE and  
 16 CM over interface B1 are forwarded to transport layer, for example, to TCP, for transmission. This is done  
 17 using COEX\_TR\_SAP service access point of CE and CM.

18 **5.2 Service access points**

19 **5.2.1 Coexistence Media SAP**

20 **5.2.1.1 General description**

21 Coexistence Media SAP (COEX\_MEDIA\_SAP) defines the interface A between CE and TVBD  
 22 network/device. The Coexistence Media SAP is defined as a set of primitives that provides the following  
 23 services:

- 24 — Information service:
  - 25 — Used by CE to obtain information required for coexistence from TVBD network/device
  - 26 — Used by TVBD network/device to obtain information required for coexistence from CE

- 1 — Used by TVBD network/device to share information required for coexistence with other TVBD
- 2 networks/devices via the IEEE 802.19.1 system
- 3 — Measurement service:
- 4 — Used by CE to request TVBD network/device to perform measurements required for coexistence
- 5 — Used by CE to obtain measurement results required for coexistence from TVBD network/device
- 6 — Reconfiguration service:
- 7 — Used by CE to request TVBD network/device to perform reconfiguration required for coexistence
- 8 — Event service:
- 9 — Used by TVBD network/device to receive information about observed or predicted events related to
- 10 coexistence from CE
- 11 — Used by CE to receive information about observed or predicted events related to coexistence from
- 12 TVBD network/device.

13 Primitives described in Table 1 are used to define the Coexistence Media SAP.

14 Table 1 – Coexistence Media SAP primitives

Primitive	Service	Description
COEX_INFO_OBTAINING	Information	Used by CE to obtain information required for coexistence from TVBD network/device.  Also, used by TVBD network/device to obtain information required for coexistence from CE.
COEX_INFO_SHARING	Information	Used by TVBD network/device to identify the capability of sharing information to other TVBD networks/devices via the IEEE 802.19.1 system.
COEX_INFO_PROVISION	Information	Used by TVBD network/device to provide information to the IEEE 802.19.1 system for sharing with other TVBD networks/devices.
COEX_RCF	Reconfiguration	Used by CE to request reconfiguration of TVBD networks/devices required for coexistence.
COEX_MEAS	Measurement	Used by CE to request TVBD network/device to perform measurement required for coexistence and to obtain measurement results.
COEX_EVENT	Event	Used by TVBD network/device to inform CE about events related to coexistence observed or predicted by TVBD network/device. Also, used by CE to inform TVBD network/device about events related to coexistence observed or predicted by IEEE 802.19.1 system.

1 **5.2.1.2 Information service**

2 **5.2.1.2.1 COEX\_INFO\_OBTAINING**

3 **5.2.1.2.1.1 COEX\_INFO\_OBTAINING.request**

4 **Function**

5 Used by CE to request information required for coexistence from TVBD network/device.

6 Also, used by TVBD network/device to request information required for coexistence from CE.

7

8 **Semantics**

9 COEX\_INFO\_OBTAINING.request(

10 CoexInfoParamIds

11 )

12

Name	Type	Description
CoexInfoParamIds	COEX_I_PARAM_IDS	This parameter contains list of information parameter IDs requested by CE.

13

14 **When generated**

15 Generated by CE to request information required for coexistence from TVBD network/device.

16 Generated by TVBD network/device to request information required for coexistence from CE.

17

18 **Effect on receipt**

19 When TVBD network/device receives this primitive, the TVBD network/device shall send  
20 COEX\_INFO\_OBTAINING.confirm back to the CE.

21 When CE receives this primitive, CE shall send COEX\_INFO\_OBTAINING.confirm back to the TVBD  
22 network/device.

23 **5.2.1.2.1.2 COEX\_INFO\_OBTAINING.confirm**

24 **Function**

25 Used by TVBD network/device to provide information required for coexistence to CE.

26 Used by CE to provide information required for coexistence to TVBD network/device.

27

1 **Semantics**  
 2 COEX\_INFO\_OBTAINING.confirm(  
 3     CoexInfoParams  
 4 )  
 5

Name	Type	Description
CoexInfoParams	COEX_I_PARAMS	This parameter contains list of information parameters requested by CE.

6  
 7 **When generated**  
 8 Generated by TVBD network/device in response to COEX\_INFO\_OBTAINING.request from CE.  
 9 Generated by CE in response to COEX\_INFO\_OBTAINING.request from TVBD network/device.

10  
 11 **Effect on receipt**  
 12 When CE receives this primitive, it examines the received information required for coexistence.  
 13 When TVBD network/device receives this primitive, it examines the received information required for  
 14 coexistence.

15 **5.2.1.2.2 COEX\_INFO\_SHARING**

16 **5.2.1.2.2.1 COEX\_INFO\_SHARING.request**

17 **Function**  
 18 Used by TVBD network/device to identify the capability of sharing information to other TVBD  
 19 networks/devices via the IEEE 802.19.1 system.

20  
 21 **Semantics**  
 22 COEX\_INFO\_SHARING.request(  
 23     InfoDestination,  
 24     CoexInfoParamIds  
 25 )  
 26

Name	Type	Description
InfoDestination	INFO_DEST	This parameter contains list of destinations to which

		TVBD network/device would like to provide information for sharing with other TVBD networks/devices.
CoexInfoParamIds	COEX_I_PARAM_IDS	This parameter contains list of information parameter IDss which TVBD network/device would like to share with other TVBD networks/devices.

1

2 ***When generated***

3 Generated by TVBD network/device to initiate the procedure to share information with other TVBD  
4 networks/devices via the IEEE 802.19.1 system.

5

6 ***Effect on receipt***

7 When CE receives this primitive, CE shall send COEX\_INFO\_SHARING.confirm back to the TVBD  
8 network/device.

9 **5.2.1.2.2.2 COEX\_INFO\_SHARING.confirm**

10 ***Function***

11 Used by CE to inform TVBD network/device about the capability of sharing information to other TVBD  
12 networks/devices via the IEEE 802.19.1 system.

13

14 ***Semantics***

15 COEX\_INFO\_SHARING.confirm(  
16     CoexInfoParamIds  
17    )  
18

Name	Type	Description
CoexInfoParamIds	COEX_I_PARAM_IDS	This parameter contains list of information parameter IDs which IEEE 802.19.1 system can share with other TVBD networks/devices.

19

20 ***When generated***

21 Generated by CE in response to COEX\_INFO\_SHARING.request from TVBD network/device.  
22

22

23 ***Effect on receipt***

24 When TVBD network/device receives this primitive, it examines the received information about the  
25 capability of sharing information to other TVBD networks/devices via the IEEE 802.19.1 system.

1 **5.2.1.2.3 COEX\_INFO\_PROVISION**

2 **5.2.1.2.3.1 COEX\_INFO\_PROVISION.request**

3 **Function**

4 Used by TVBD network/device to provide information to the IEEE 802.19.1 system for sharing with other  
5 TVBD networks/devices.

6

7 **Semantics**

8 COEX\_INFO\_PROVISION.request(  
9 InfoDestination,  
10 CoexInfoParams  
11 )  
12

Name	Type	Description
InfoDestination	INFO_DEST	This parameter contains list of destinations to which TVBD network/device provides information.
CoexInfoParams	COEX_I_PARAMS	This parameter contains list of information parameters which TVBD network/device is providing.

13

14 **When generated**

15 Generated by TVBD network/device to provide information to the IEEE 802.19.1 system for sharing with  
16 other TVBD networks/devices.

17

18 **Effect on receipt**

19 When CE receives this primitive, CE shall send COEX\_INFO\_PROVISION.confirm back to the TVBD  
20 network/device.

21 **5.2.1.2.3.2 COEX\_INFO\_PROVISION.confirm**

22 **Function**

23 Used by CE to inform TVBD network/device about the status of the request to provide information to the  
24 IEEE 802.19.1 system for sharing with other TVBD networks/devices.

25

26 **Semantics**

27 COEX\_INFO\_PROVISION.confirm(  
28

1 InfoProvisionStatus

2 )

3

Name	Type	Description
InfoProvisionStatus	I_STATUS	This parameter describes the status of information provision request issued by the TVBD network/device.

4

5 ***When generated***

6 Generated by CE in response to COEX\_INFO\_PROVISION.request from TVBD network/device.

7

8 ***Effect on receipt***

9 When TVBD network/device receives this primitive, it examines the received information about the status  
10 of the request to provide information to the IEEE 802.19.1 system for sharing with other TVBD  
11 networks/devices.

12 **5.2.1.3 Reconfiguration service**

13 **5.2.1.3.1 COEX\_RCF**

14 **5.2.1.3.1.1 COEX\_RCF.request**

15 ***Function***

16 Used by CE to request reconfiguration of TVBD networks/devices required for coexistence.

17

18 ***Semantics***

19 COEX\_RCF.request(  
20 CoexReconParams

21 )

22

Name	Type	Description
CoexReconParams	COEX_R_PARAMS	This parameter contains list of reconfiguration parameters according to which TVBD network/device shall perform reconfiguration.

23

24 ***When generated***

1 Generated by CE to request reconfiguration of TVBD networks/devices required for coexistence.

2

3 ***Effect on receipt***

4 When TVBD network/device receives this primitive, it performs corresponding reconfiguration. Then,  
5 TVBD network/device shall send COEX\_RCF.confirm back to the CE.

6 **5.2.1.3.1.2 COEX\_RCF.confirm**

7 ***Function***

8 Used by TVBD network/device to inform CE about the results of the request to perform reconfiguration of  
9 TVBD networks/devices required for coexistence.

10

11 ***Semantics***

12 COEX\_RCF.confirm(  
13     CoexReconResults  
14    )  
15

Name	Type	Description
CoexReconResults	COEX_R_RESULTS	This parameter describes the result of the reconfiguration requested by the CE.

16

17 ***When generated***

18 Generated by TVBD network/device in response to the COEX\_RCF.request from CE.

19

20 ***Effect on receipt***

21 When CE receives this primitive, it examines the received information about the status of the request to  
22 perform reconfiguration of TVBD networks/devices required for coexistence.

23 **5.2.1.4 Measurement service**

24 **5.2.1.4.1 COEX\_MEAS**

25 **5.2.1.4.1.1 COEX\_MEAS.request**

26 ***Function***

27 Used by CE to request TVBD network/device to perform measurement required for coexistence.



1

2 **Semantics**

3 COEX\_MEAS.request(  
4 CoexMeasuParams  
5 )

6

Name	Type	Description
CoexMeasuParams	COEX_M_PARAMS	This parameter contains list of measurement parameters according to which TVBD network/device shall perform measurement.

7

8 **When generated**

9 Generated by CE to request TVBD network/device to perform measurement required for coexistence.

10

11 **Effect on receipt**

12 When TVBD network/device receives this primitive, it performs requested measurement. Then, TVBD  
13 network/device shall send COEX\_MEAS.confirm back to CE.

14 **5.2.1.4.1.2 COEX\_MEAS.confirm**

15 **Function**

16 Used by TVBD network/device to provide requested measurement results to CE.

17

18 **Semantics**

19 COEX\_MEAS.confirm(  
20 CoexMeasuResults  
21 )

22

Name	Type	Description
CoexMeasuResults	COEX_M_RESULTS	This parameter contains list of results of measurement performed by TVBD network/device

23

24 **When generated**

25 Generated by TVBD network/device in response to the COEX\_MEAS.request from CE.

26

1 ***Effect on receipt***

2 When CE receives this primitive, it examines the received measurement results required for coexistence.

3 **5.2.1.5 Event service**

4 **5.2.1.5.1 COEX\_EVENT.indication**

5 ***Function***

6 Used by TVBD network/device to inform CE about events related to coexistence observed or predicted by  
7 TVBD network/device.

8 Also, used by CE to inform TVBD network/device about events related to coexistence observed or  
9 predicted by IEEE 802.19.1 system.

10

11 ***Semantics***

12 COEX\_EVENT.indication(  
13 CoexEventParams  
14 )  
15

Name	Type	Description
CoexEventParams	COEX_E_PARAMS	This parameter contains list of event parameters.

16

17 ***When generated***

18 Generated by TVBD network/device to inform CE about events related to coexistence observed or  
19 predicted by TVBD network/device.

20 Generated by CE to inform TVBD network/device about events related to coexistence observed or  
21 predicted by IEEE 802.19.1 system.

22

23 ***Effect on receipt***

24 When CE receives this primitive, it examines the received information about events related to coexistence  
25 observed or predicted by TVBD network/device.

26 When TVBD network/device receives this primitive, it examines the received information about events  
27 related to coexistence observed or predicted by IEEE 802.19.1 system.

1 **5.2.2 Coexistence Transport SAP**

2 **5.2.2.1 General description**

3 Coexistence Transport SAP (COEX\_TR\_SAP) provides means for Coexistence Enabler, Coexistence  
 4 Manager, and Coexistence Discovery and Information Server to communicate with each other and with  
 5 external entities by using transport services provided by underlying layers. The Coexistence Transport SAP  
 6 is defined as a set of primitives that provides the following service:

- 7 — Transport service:  
 8 — Used by CE, CM, CDIS or external entity to send coexistence protocol data unit to each other and  
 9 to external entities and to receive acknowledgement of such operation  
 10 — Used by CE, CM, and CDIS or external entity to receive coexistence protocol data unit from each  
 11 other and from external entities.  
 12

13 Primitives described in Table 2 are used to define the Coexistence Transport SAP.  
 14  
 15

Table 2 – Coexistence Transport SAP primitives

Primitive	Service	Description
CP_PACKET_SEND	Transport	Used by CE, CM, CDIS or external entity to send a coexistence protocol data unit using a transport service provider.
CP_PACKET_RECEIVE	Transport	Used by a transport service provider to deliver a coexistence protocol data unit to CE, CM, CDIS or external entity.

16 **5.2.2.2 Transport service**

17 **CP\_PACKET\_SEND**

18 **CP\_PACKET\_SEND.request**

19 **Function**

20 Used by CE, CM, CDIS or external entity to request the transport service provider to transport a  
 21 coexistence protocol data unit.  
 22

23 **Semantics**

24 CP\_PACKET\_SEND.request (

25 TransportPref,

26 SourceID,

27 DestinationID,

28 CoexProtocolPDU

1 )

2

Name	Type	Description
TransportPref	TRANSPORT_PREF	Transport protocol preference.
SourceID	TRANSPORT_ADDR	Address of the entity sending coexistence protocol data unit.
DestinationID	TRANSPORT_ADDR	Address of the entity to receive coexistence protocol data unit.
CoexProtocolPDU	OCTET_STRING	Coexistence protocol data unit to be transported.

3

4 ***When generated***

5 Generated by CE, CM, CDIS or external entity to request the transport service provider to transport a  
6 coexistence protocol data unit.

7 ***Effect on receipt***

8 The specific transport service provider receiving this primitive attempts to transport the coexistence protocol  
9 data unit.

10 **CP\_PACKET\_SEND.confirm**

11 ***Function***

12 Used by transport service provider to acknowledge transportation of the coexistence protocol data unit if  
13 such acknowledgment is supported by the transport service provider.

14

15 ***Semantics***

16 CP\_PACKET\_SEND.confirm(  
17     TransportPref,  
18     SourceID,  
19     DestinationID,  
20     TransportStatus  
21     )  
22

Name	Type	Description
TransportPref	TRANSPORT_PREF	Transport protocol preference.
SourceID	TRANSPORT_ADDR	Address of the entity sending coexistence protocol data unit.
DestinationID	TRANSPORT_ADDR	Address of the entity to receive coexistence protocol data unit.
TransportStatus	BOOLEAN	Indicates whether the transfer of coexistence protocol data unit is successful or not.

1

2 ***When generated***

3 Generated by the transport service provider to confirm delivery of coexistence protocol data if such  
4 acknowledgement is supported by the transport service provider.

5

6 ***Effect on receipt***

7 When CE, CM, CDIS or external entity receives this primitive, it learns about the status of the requested  
8 delivery of coexistence protocol data.

9 **CP\_PACKET\_RECEIVE**

10 ***Function***

11 Used by transport service provider to deliver a coexistence protocol data unit to CE, CM, CDIS or external  
12 entity.

13

14 ***Semantics***

15 CP\_PACKET\_RECEIVE(  
16     TransportPref,  
17     SourceID,  
18     DestinationID,  
19     CoexProtocolPDU  
20 )  
21

Name	Type	Description
TransportPref	TRANSPORT_PREF	Transport protocol preference.
SourceID	TRANSPORT_ADDR	Address of the entity sending coexistence protocol data unit.
DestinationID	TRANSPORT_ADDR	Address of the entity to receive coexistence protocol data unit.
CoexProtocolPDU	OCTET_STRING	Coexistence protocol data unit to be delivered.

22

23 ***When generated***

24 Generated by the transport service provider when it has coexistence protocol data unit for CE, CM, CDIS  
25 or external entity.

26 ***Effect on receipt***

27 The CE, CM, CDIS or external entity receiving this primitive gets coexistence protocol data unit.

## 1 5.3 Data types

### 2 5.3.1 Coexistence Media SAP data types

3 The following data types are defined for Coexistence Media SAP.

#### 4 5.3.1.1 Information service data types

5 The following data types are defined for information service of Coexistence Media SAP.

6

```

7 I_PARAM_ID ::= ENUMERATED{
8   BSSID,
9   SSID,
10  BSSType,
11  BeaconPeriod,
12  DTIMPeriod,
13  Timestamp,
14  LocalTime,
15  PHYParameterSet,
16  CFParameterSet,
17  IBSSATIMWindow,
18  CapabilityInformation,
19  BSSBasicRateSet,
20  OperationalRateSet,
21  Country,
22  IBSSDFSRecoveryInterval,
23  Load,
24  TPCTransmitPower,
25  TPCLinkMargin,
26  NeighbourBSSSet,
27  ListOfAvailableChannels,
28  NetworkChannels,
29  AntennaInfo,
30  TVBDInfo,
31  SysEntityID,
32  TVBDID,
33  ListOfNeighbours,
34  ...
35 }
36
37 COEX_I_PARAM_IDS ::= SEQUENCE OF I_PARAM_ID
38
39 I_PARAM_VALUE ::= CHOICE{
40   BSSID                STRING,
41   SSID                 STRING,
42   BSSType              ENUMERATED,
43   BeaconPeriod         INTEGER,
44   DTIMPeriod           INTEGER,
45   Timestamp            INTEGER,
46   LocalTime            INTEGER,
47   PHYParameterSet     PHY_PARAM_SET,
48   CFParameterSet      CF_PARAM_SET,

```

```

1      IBSSATIMWindow          TU,
2      CapabilityInformation    BSS_CAPA_INFO,
3      BSSBasicRateSet         SET OF INTEGER,
4      OperationalRateSet      SET OF INTEGER,
5      Country                  STRING,
6      IBSSDFSRecoveryInterval INTEGER,
7      Load                     BSS_LOAD,
8      TPCTransmitPower        INTEGER,
9      TPCLinkMargin           INTEGER,
10     NeighbourBSSSet         NEIBR_BSS_SET,
11     ListOfAvailableChannels LIST_TV_CHANNELS,
12     NetworkChannels         NETWORK_CHANNELS,
13     AntennaInfo             ANTENNA_INFO,
14     TVBDInfo                 TVBD_INFO,
15     SysEntityID              INTEGER,
16     TVBDID                   STRING,
17     ListOfNeighbours        LIST_NEIGHBOURS,
18     ...
19 }
20
21 COEX_I_PARAM ::= SEQUENCE{
22     InfoParamId              I_PARAM_ID,
23     InfoStatus                I_STATUS,
24     InfoParamValue           I_PARAM_VALUE
25 }
26
27 COEX_I_PARAMS ::= SEQUENCE OF COEX_I_PARAM
28
29 I_STATUS ::= ENUMERATED{
30     SUCCESS,
31     NOT_AVAILABLE_NOW,
32     NOTSUPPORTED,
33     BUSY,
34     ...
35 }
36
37 SYS_ENTITY_ID ::= INTEGER
38
39 INFO_DEST ::= SEQUENCE OF SYS_ENTITY_ID
40

```

41 Table 3 describes parameters of data types of information service of Coexistence Media SAP.

42

43

Table 3 – Parameters of data types of information service of Coexistence Media SAP

Name	Type	Valid range	Description	Note
BSSID	MAC_ADDR	N/A	The BSSID of the found BSS.	802.11-2007 Scan. confirm BSS Description Set
SSID	OCTET_STRING	1..32 octets	The SSID of the found BSS.	
BSSType	ENUMERATED	INFRASTRUC TURE, INDEPENDENT	The type of the found BSS.	
BeaconPeriod	INTEGER	N/A	The Beacon period of the	

			found BSS (in TU).
DTIMPeriod	INTEGER	As defined in frame format	The DTIM period of the BSS (in beacon periods).
Timestamp	INTEGER	N/A	The timestamp of the received frame (probe response/beacon) from the found BSS.
LocalTime	INTEGER	N/A	The value of the STA's TSF timer at the start of reception of the first octet of the timestamp field of the received frame (probe response or beacon) from the found BSS.
PHYParameter Set	PHY_PARAM_SET	As defined in frame format or according to the relevant PHY clause	The parameter sets relevant to the PHY from the received Beacon or Probe Response frame. If no PHY Parameter Set information element is present in the received frame, this parameter contains the channel number on which the frame was received. Valid channel numbers are defined in the relevant PHY clause.
CFParameter Set	CF_PARAM_SET	As defined in frame format	The parameter set for the CF periods, if found BSS supports CF mode.
IBSSATIM Window	TU	As defined in frame format	The parameter set for the IBSS, if found BSS is an IBSS.
Capability Information	BSS_CAPA_INFO	As defined in frame format	The advertised capabilities of the BSS.
BSSBasicRate Set	SET OF INTEGER	1..127 inclusive (for each integer in the set)	The set of data rates that must be supported by all STAs that desire to join this BSS. The STAs must be able to receive and transmit at each of the data rates listed in the set.
Operational RateSet	SET OF INTEGER	1..127 inclusive (for each integer in the set)	The set of data rates that the STA desires to use for communication within the BSS. The STA must be able to receive at each of the data rates listed in the set. This set is a superset of the rates contained in the BSSBasicRateSet parameter.
Country	STRING	As defined in the Country element	The information required to identify the regulatory



			domain in which the STA is located and to configure its PHY for operation in that regulatory domain. Present only when TPC functionality is required, as specified in 11.8, or when dot11MultiDomain CapabilityEnabled is true.	
IBSSDFS Recovery Interval	INTEGER	1..255	Only present if BSSType = INDEPENDENT. The time interval that is used for DFS recovery. Present only when DFS functionality is required.	
Load	BSS_LOAD	As defined in frame format	The values from the BSS Load information element if such an element was present in the probe response or Beacon frame, else null.	
TPC Transmit Power	INTEGER		The Transmit Power field shall be set to the transmit power used to transmit the frame containing the TPC Report element. The field is coded as a signed integer in units of decibels relative to 1 mW. The maximum tolerance for the transmit power value reported in the TPC Response element shall be $\pm 5$ dB. This tolerance is defined as the difference, in decibels, between the reported power value and the actual EIRP of the STA (measured when transmitting 1500 octet frames).	802.11-2007 TPC report  MLME-TPCADAPT.confirm
TPC Link Margin	INTEGER		The Link Margin field contains the link margin at the time and for the rate at which the frame containing the TPC Request element was received. The field is coded as a signed integer in units of decibels. The LinkMargin field shall be set to 0 and shall be ignored when a TPC Report element is included in a Beacon frame or Probe Response frame.	

			The measurement method of Link Margin is beyond the scope of this standard.	
Neighbour BSSSet	NEIBR_BSS_SET	Specified in the regulatory domain	Report the neighbor of an BSS  Report the channel of the neighbor BSS	11k Neighbour report
ListOfAvailable Channels	LIST_TV_CHANNELS			802.11af 802.22
Network Channels	NETWORK_CHANNELS		The parameter reports the network channels that TV band devices and networks are operating on.	802.11af  IEEE 802.22 M-WRAN-SERVICE-REPORT
AntennaInfo	ANTENNA_INFO		Specifying the antenna information of TV band devices.	IEEE 1900.6
TVBDInfo	TVBD_INFO		The value identifies the type of device at the geolocation registering	IEEE 802.22  IEEE 802.11 device types are denoted as WLAN STA and WLAN AP
NeighbourBSS Set	NEIBR_BSS_SET	Specified in the regulatory domain	Report the neighbor of an BSS. Report the channel of the neighbor BSS.	802.11k Neighbour report
SysEntityID	INTEGER		Logical ID of IEEE 802.19.1 system entity.	Parameters added for TVBD
TVBDID	STRING		This TVBDID can be the FCC ID	
ListOfAvailable Channels	LIST_TV_CHANNELS		This parameter gives the list of available channels (TV channels) as decided by the IEEE 802.19.1 system.	From IEEE 802.19.1 system to TVBDs
ListOf Neighbours	LIST_NEIGHBOURS		This parameter gives the TVBD ID, TVBDInfo, occupied channels, mobility (fixed, mobile),	

1

2 **5.3.1.2 Reconfiguration service data types**

3 The following data types are defined for reconfiguration service of Coexistence Media SAP.

4

5 COEX\_R\_OBJ\_ID ::= ENUMERATED{  
6 ChannelSwitch,  
7 ChangeTransmitPower,  
8 Scheduling

```

1  }
2
3  R_PROFILE_PARAM_ID ::= ENUMERATED{
4      NewRegulatoryClass,
5      ChannelNumber,
6      ChannelSwitchMode,
7      ChannelSwitchCount,
8      DSELocalPowerConstraint,
9      NewNetworkChannels,
10     DisallowedChannels,
11     OperatingChannels,
12     Scheduling
13     ...
14 }
15
16 R_PROFILE_PARAM_VALUE ::= CHOICE{
17     NewRegulatoryClass          INTEGER,
18     ChannelNumber,              INTEGER,
19     ChannelSwitchMode           CHANNEL_SWITCH_MODE,
20     ChannelSwitchCount          INTEGER,
21     DSELocalPowerConstraint     INTEGER,
22     NewNetworkChannels          NET_CHANNELS,
23     DisallowedChannels          SET OF INTEGER,
24     OperatingChannels           SET OF INTEGER,
25     Schedule                    SCHEDULE,
26     ...
27 }
28
29 R_PROFILE_PARAM ::= SEQUENCE{
30     ReconProfileParamID          R_PROFILE_PARAM_ID,
31     ReconProfileParamValue      R_PROFILE_PARAM_VALUE
32 }
33
34 COEX_R_PROFILE ::= SEQUENCE OF R_PROFILE_PARAM
35
36 COEX_R_PARAM ::= SEQUENCE{
37     CoexReconObjID              COEX_R_OBJ_ID,
38     CoexReconProfile            COEX_R_PROFILE
39 }
40
41 COEX_R_PARAMS ::= SEQUENCE OF COEX_R_PARAM
42
43 R_STATUS ::= ENUMERATED{
44     SUCCESS,
45     NOTSUPPORTED,
46     BUSY,
47     TOANOTHERVALUE,
48     ...
49 }
50
51 COEX_R_RESULT ::= SEQUENCE{
52     CoexReconObjID              COEX_R_OBJ_ID,
53     ReconStatus                  R_STATUS,
54     CoexReconParams              COEX_R_PARAMS          OPTIONAL
55 }
56
57 COEX_R_RESULTS ::= SEQUENCE of COEX_R_RESULT

```

1

2 Table 4 and Table 5 describe parameters of data types of reconfiguration service of Coexistence Media  
3 SAP.

4

5 Table 4 – Parameters of data types of reconfiguration service of Coexistence Media SAP

Name	Type	Valid range	Description	Note
NewRegulatory Class	INTEGER		The New Regulatory Class field is set to the number of the regulatory class after the channel switch, as defined in Annex J in IEEE 802.11 standards	802.11-2007 Channel Switch  802.11y Extended Channel Switch
NewChannel Number	INTEGER	As specified in the regulatory domain	The number of the new channel to be switched to.	
ChannelSwitch Mode	CHANNEL_SWITCH_MODE	0 or 1	A Channel Switch Mode set to 1 means that the STA in a BSS to which the frame containing the element is addressed shall transmit no further frames within the BSS until the scheduled channel switch. A STA in an IBSS may treat a Channel Switch Mode field set to 1 as advisory. A Channel Switch Mode set to 0 does not impose any requirement on the receiving STA.	
ChannelSwitch Count	INTEGER	Specifies the number of TBTTs until the channel switch event, as described for the Channel Switch Announcement element.	The Channel Switch Count field either shall be set to the number of TBTTs until the STA sending the Channel Switch Announcement element switches to the new channel or shall be set to 0. A value of 1 indicates that the switch shall occur immediately before the next TBTT. A value of 0 indicates that the switch shall occur at any time after the frame containing the element is transmitted.	
DSELocal Power	INTEGER	Maximum 4w	The local maximum transmit power for a	802.11y

Constraint			channel is thus defined as the maximum transmit power level specified for the channel in the Country element minus the local power constraint specified for the channel in the DSE Power Constraint frame.	802.11af
NewNetwork Channels	NET_CHANNELS		Specifies the network channels and maximum transmit power in a regulation domain that the TVBD are allowed to operate in TV band. The parameter has been defined in subclause 5.2.1.2 but is used for reconfiguration purpose. The parameter is used here to indicate the network channels that the TVBD should change to.	802.11af
Disallowed Channels	SET OF INTEGER		The parameter is used for disallowing a number of channels among the list of available channels from the TVWS database.	IEEE 802.22
Operating Channels	SET OF INTEGER		The parameter is used to select channels for operation from the list of available channels	IEEE 802.22

1

2

Table 5 – Parameters of data types of reconfiguration service of Coexistence Media SAP

Name	Type	Valid range	Description	Note
BSSType	BSS_TYPE	INFRASTRUCTURE, INDEPENDENT, ANY_BSS	Determines whether infrastructure BSS, IBSS, or both, are included in the scan.	802.11-2007 Scan.request
BSSID	STRING	Any valid individual or broadcast MAC address	Identifies a specific or wildcard BSSID.	
SSID	STRING	0..32 octets	Specifies the desired SSID or the wildcard SSID.	
ScanType	ENUMERATED	ACTIVE, PASSIVE	Indicates either active or passive scanning.	
ProbeDelay	INTEGER	N/A	Delay (in microseconds) to be used prior to transmitting a Probe frame during active scanning.	
ChannelList	SEQUENCE OF INTEGER	Each channel will be selected from the valid channel	Specifies a list of channels that are examined when scanning for a BSS.	

		range for the appropriate PHY and carrier set.		
MinChannel Time	INTEGER	ProbeDelay	The minimum time (in TU) to spend on each channel when scanning.	
MaxChannel Time	INTEGER	MinChannelTime	The maximum time (in TU) to spend on eachchannel when scanning.	
ChMeasuType	Ch_MEASU_TYPE	0,1,2	0: Basic request; 1: Clear channel assessment (CCA) request 2: Receive power indication (RPI) histogram request	.11-2007 measure ment request
Channel Number	INTEGER	Specified in regulatory domain	Channel number for which the measurement request applies	
StartTime	INTEGER		The parameter specifies the time at which the requested measurement, as specified by the MeasurementType parameter, shall start. A value of 0 shall indicate it shall start immediately.	
Duration	INTEGER		The Measurement Duration field shall be set to the duration of the requested measurement, as specified by the MeasurementType parameter, expressed in TUs.	
LinkMeasu PeerAdd	STRING	Any valid individual MAC address	The address of the peer MAC entity to which the Link Measure Request shall be sent.	802.11k Link measure ment
LinkMeasu TxPower	INTEGER		The transmit power to be used when transmitting the Link Measurement Request frame and included in the frame body	
LinkMeasu MaxiTxPower	INTEGER		The maximum transmit power to be used by the transmitting STA on its operating channel.	
Sensing Window	SENSING_WINDOW		Specification consists of: NumSensingPeriods SensingPeriodDuration SensingPeriodInterval	802.22 SM-SSF
SignalType	SIGNAL_TYPE		The interger number specifies the following	

			<p>types of signals to be sensed by the spectrum sensor.</p> <p>0: Any Signal Type  1: IEEE 802.22 WRAN  2: ATSC  3: DVB-T  4: ISDB-T  5: NTSC  6: PAL  7: SECAM  8: Wireless Microphone  9: IEEE 802.22.1 Sync Burst  10: IEEE 802.22.1 PPDU MFS1  11: DVB-TIEEE 802.22.1 PPDU MSF2  12: IEEE 802.22.1 PPDU MSF3  13: Medical telemetry devices  14: Studio-transmitter link  15-24 Reserved</p>	
SensingMode	SENSING_MODE		<p>Mode 0: For each signal type the SSF generates a binary decision as to whether the signal is present in the television channel</p> <p>Mode 1: Same as sensing mode 0 with the addition of a confidence metric for binary decision</p> <p>Mode 2: For each signal type the spectrum sensor generates an estimate of the field strength of that Signal</p> <p>Mode 3: Same as sensing mode 2 with the standard deviation of the field strength estimate from sensing mode 2.</p> <p>Mode4: reserved</p>	
Detection Threshold	REAL	-160~70	The parameter specifies the noise power in dBm.	IEEE 1900.6
Performance Metric	PERF_METRIC		Parameter that indicates the quality of sensing.	
Geolocation	STRING		Reques to obtain the geolocation information of the TV band devices.	IEEE 802.22 GL-SAP, 802.11af, 1900.6

1

### 1 5.3.1.3 Measurement service data types

2 The following data types are defined for measurement service of Coexistence Media SAP.

3

```

4 COEX_M_OBJ_ID ::= ENUMERATED{
5     802.11BSSScan,
6     802.11ChannelMeasu,
7     802.11kLinkMeasu,
8     802.22Sensing
9 }
10
11 M_PROFILE_PARAM_ID ::= ENUMERATED{
12     BSSType,
13     BSSID,
14     SSID,
15     ScanType,
16     ProbeDelay,
17     ChannelList,
18     MinChannelTime,
19     MaxChannelTime,
20     ChMeasuType,
21     ChannelNumber,
22     StartTime,
23     Duration,
24     LinkMeasuPeerAdd,
25     LinkMeasuTxPower,
26     LinkMesuMaxiTxPower,
27     SensingWindow,
28     SignalType,
29     SensingMode,
30     DetectionThreshold,
31     PerformanceMetric,
32     Geolocation,
33     ...
34 }
35
36 M_PROFILE_PARAM_VALUE ::= CHOICE{
37     BSSType          BSS_TYPE,
38     BSSID            STRING,
39     SSID             STRING,
40     ScanType         SCAN_TYPE,
41     ProbeDelay       INTEGER,
42     ChannelList      SEQUENCE OF INTEGER,
43     MinChannelTime  INTEGER,
44     MaxChannelTime  INTEGER,
45     ChMeasuType     CH_MEASU_TYPE,
46     ChannelNumber   INTEGER,
47     StartTime       INTEGER,
48     Duration        INTEGER,
49     LinkMeasuPeerAdd STRING,
50     LinkMeasuTxPower INTEGER,
51     LinkMeasuMaxiTxPower INTEGER,
52     SensingWindow   SENSING_WINDOW,
53     SignalType      SIGNAL_TYPE,

```



```

1      SensingMode                SENSING_MODE,
2      DetectionThreshold          REAL,
3      PerformanceMetric           PERF_METRIC,
4      Geolocation                 STRING,
5      ...
6  }
7
8  M_PROFILE_PARAM ::= SEQUENCE{
9      MeasuProfileParamID         M_PROFILE_PARAM_ID,
10     MeasuProfileParamValue     M_PROFILE_PARAM_VALUE
11 }
12
13 COEX_M_PROFILE ::= SEQUENCE OF M_PROFILE_PARAM
14
15 COEX_M_PARAM ::= SEQUENCE{
16     CoexMeasuObjID             COEX_M_OBJ_ID,
17     CoexMeasuProfile          COEX_M_PROFILE
18 }
19
20 COEX_M_PARAMS ::= SEQUENCE OF COEX_M_PARAM
21
22 M_STATUS ::= ENUMERATED{
23     SUCCESS,
24     NOTSUPPORTED,
25     BUSY,
26     ...
27 }
28
29 M_RESULT_PARAM_ID ::= ENUMERATED{
30     BSSID,
31     SSID,
32     BSSType,
33     BeaconPeriod,
34     DIMPeriod,
35     TimeStamp,
36     LocalTime,
37     PHYParameterSet,
38     CFParameterSet,
39     IBSSATIMWindow,
40     CapabilityInformation,
41     BSSBasicRateSet,
42     OperationalRateSet,
43     Country,
44     IBSSDFSRecoveryInterval,
45     Load,
46     ChMeasuType,
47     ChannelNumber,
48     StartTime,
49     Duration,
50     ChMeasuReport,
51     TransmitPower,
52     LinkMargin,
53     RCPI,
54     RSNI,
55     ReceiveAntennaID,
56     TransmitAntennaID,
57     SensingResult,

```

```

1     Geolocation,
2     ...
3 }
4
5 M_RESULT_PARAM_VALUE ::= CHOICE{
6     BSSID                STRING,
7     SSID                 STRING,
8     BSST                 BSS_TYPE,
9     BeaconPeriod        INTEGER,
10    DIMPeriod            INTEGER,
11    TimeStamp            INTEGER,
12    LocalTime            INTEGER,
13    PHYParameterSet      PHY_PARAM_SET,
14    CFParameterSet       CF_PARAM_SET,
15    IBSSATIMWindow       TU,
16    CapabilityInformation BSS_CAPA_INFO,
17    BSSBasicRateSet      SET OF INTEGER,
18    OperationalRateSet   SET OF INTEGER,
19    Country               STRING,
20    IBSSDFSRecoveryInterval INTEGER,
21    Load                 BSS_LOAD,
22    ChMeasuType           CH_MEASU_TYPE,
23    ChannelNumber         INTEGER,
24    StartTime            INTEGER,
25    Duration              INTEGER,
26    ChMeasuReport         CH_MEASU_REPORT,
27    TransmitPower         INTEGER,
28    LinkMargin            INTEGER,
29    RCPI                  REAL,
30    RSNI                  REAL,
31    ReceiveAntennaID      INTEGER,
32    TransmitAntennaID     INTEGER,
33    SensingResult         SENSING_RESULT,
34    Geolocation           STRING,
35    ...
36 }
37
38 M_RESULT_PARAM ::= SEQUENCE{
39     MeasuResultParamID      M_RESULT_PARAM_ID,
40     MeasuResultParamValue  M_RESULT_PARAM_VALUE
41 }
42
43 M_RESULT_PARAMS ::= SEQUENCE OF M_RESULT_PARAM
44
45 COEX_M_RESULT ::= SEQUENCE{
46     CoexMeasuObjID          COEX_M_OBJ_ID,
47     MeasuStatus             M_STATUS,
48     MeasuResultParams       M_RESULT_PARAMS
49 }
50
51 COEX_M_RESULTS ::= SEQUENCE of COEX_M_RESULT
52

```

53 Table 6 describes parameters of data types of measurement service of Coexistence Media SAP.

54

1 Table 6 – Parameters of data types of measurement service of Coexistence Media SAP

Name	Type	Valid range	Description	Note
BSSID	STRING	N/A	The BSSID of the found BSS.	802.11-2007 Scan. confirm
SSID	STRING	1..32 octets	The SSID of the found BSS.	
BSSType	BSS_TYPE	INFRASTRUCTURE, INDEPENDENT	The type of the found BSS.	BSS Description Set
BeaconPeriod	INTEGER	N/A	The Beacon period of the found BSS (in TU).	
DTIM Period	INTEGER	As defined in frame format	The DTIM period of the BSS (in beacon periods).	
Timestamp	INTEGER	N/A	The timestamp of the received frame (probe response/beacon) from the found BSS.	
LocalTime	INTEGER	N/A	The value of the STA fs TSF timer at the start of reception of the first octet of the timestamp field of the received frame (probe response or beacon) from the found BSS.	
PHYParameter Set	PHY_PARAM_SET	As defined in frame format or according to the relevant PHY clause.	The parameter sets relevant to the PHY from the received Beacon or Probe Response frame. If no PHY Parameter Set information element is present in the received frame, this parameter contains the channel number on which the frame was received. Valid channel numbers are defined in the relevant PHY clause.	
CFParameter Set	CF_PARAM_SET	As defined in frame format	The parameter set for the CF periods, if found BSS supports CF mode.	
IBSSATIM Window	TU	As defined in frame format	The parameter set for the IBSS, if found BSS is an IBSS.	
Capability Information	BSS_APA_INFO	As defined in frame format	The advertised capabilities of the BSS.	
BSSBasicRate Set	SET OF INTEGER	1..127 inclusive (for each integer in the set)	The set of data rates that must be supported by all STAs that desire to join this BSS. The STAs must be able to receive and transmit at each of the data rates listed in the set.	
Operational	SET OF	1..127 inclusive	The set of data rates that	

RateSet	INTEGER	(for each integer in the set)	the STA desires to use for communication within the BSS. The STA must be able to receive at each of the data rates listed in the set. This set is a superset of the rates contained in the BSSBasicRateSet parameter.	
Country	STRING	As defined in the Country element	The information required to identify the regulatory domain in which the STA is located and to configure its PHY for operation in that regulatory domain. Present only when TPC functionality is required, as specified in 11.8, or when dot11MultiDomainCapabilityEnabled is true.	
IBSSDFS Recovery Interval	INTEGER	1..255	Only present if BSSType = INDEPENDENT. The time interval that is used for DFS recovery. Present only when DFS functionality is required.	
Load	BSS_LOAD	As defined in frame format	The values from the BSS Load information element if such an element was present in the probe response or Beacon frame, else null.	
Measurement Type	CH_MEASU_TYPE	0,1,2	0: Basic request; 1: Clear channel assessment (CCA) request 2: Receive power indication (RPI) histogram request	.11-2007 measurement report
Channel Number	INTEGER	Specified in regulatory domain	channel number for which the measurement report applies	
StartTime	INTEGER		The parameter specifies the time at which the requested measurement, as specified by the MeasurementType parameter, has started. A value of 0 shall indicate it shall start immediately.	
Duration	INTEGER		The Measurement Duration field shall be set to the duration of the requested measurement, as specified by the MeasurementType	

			parameter, expressed in TUs.	
ChMeasu Report	CH_MEASU_REPORT		Result of selected measurement. See the following tables for the parameter description of BasicReport, CCAResult and RPIHistogramReport	
TransmitPower	INTEGER	As defined in the TPC Report element	The contents of the Transmit Power field of the received Link Measurement Report frame. Present only(#1472) if ResultCode = SUCCESS.	802.11k Link measurement
LinkMargin	INTEGER	As defined in the TPC Report element	The contents of the Link Margin field of the received Link Measurement Report frame. Present only(#1472) if ResultCode = SUCCESS.	
RCPI	REAL	As defined in 15.4.8.5 (Received Channel Power Indicator Measurement(11k)), or 17.3.10.6 (Received Channel Power Indicator Measurement(11k)), or 18.4.8.5 (Received Channel Power Indicator Measurement(11k))	The RCPI level of the corresponding Link Measurement Request frame received at the reporting STA. Present only(#1472) if ResultCode = SUCCESS.	
RSNI	REAL	As defined in 7.3.2.41 (RSNI element(11k))	The RSNI of the corresponding Link Measurement Request frame received at the reporting STA. Present only(#1472) if ResultCode = SUCCESS	
Receive AntennaID	INTEGER	0~255	The Antenna ID corresponding to the antenna on which the Link Measurement Request frame was received at the reporting STA. Antenna ID is defined in 7.3.2.29 (EDCA Parameter Set element).	

Transmit AntennaID	INTEGER	0~255	The Antenna ID corresponding to the antenna used to transmit the Link Measurement Report frame. Antenna ID is defined in 7.3.2.29 (EDCA Parameter Set element).	
SensingResult	SENSING_RESULT		Return the result of spectrum measurement for the selected sensing mode.	
Geolocation	String		Result of geolocation measurement	IEEE 802.22 GL-SAP, 802.11af and 1900.6

1

### 2 5.3.1.4 Event service data types

3 The following data types are defined for event service of Coexistence Media SAP.

4

```

5 COEX_E_ID ::= ENUMERATED{
6   NewBSSStart,
7   Interference,
8   NewChannelAdded,
9   ChannelRemoved,
10  NeighbourChange,
11  InformationForSharing,
12  NetworkChannelChanged,
13  ...
14 }
15
16 E_PARAM_ID ::= ENUMERATED{
17   BSSID,
18   NeighbourChange,
19   InterferenceLevels,
20   AddedChannelList,
21   RemovedChannelList,
22   UpdatedNetworkChannels
23   ...
24 }
25
26 E_PARAM_VALUE ::= CHOICE {
27   BSSID                               STRING,
28   NeighbourChange                     NEIGHBOUR_CHANGE,
29   InterferenceLevels                  INTERFERENCE_LEVELS,
30   AddedChannelList                    LIST_TV_CHANNELS,
31   RemovedChannelList                  LIST_TV_CHANNELS,
32   UpdatedNetworkChannels              NETWORK_CHANNELS,
33   ...
34 }
35
36 E_PARAM ::= SEQUENCE{

```

```

1      EventParamID          E_PARAM_ID
2      EventParamValue      E_PARAM_VALUE
3  }
4
5  E_PARAMS ::= SEQUENCE OF E_PARAM
6
7  COEX_E_PARAM ::= SEQUENCE {
8      CoexEventId          COEX_E_ID
9      CoexEvenParams      E_PARAMS
10 }
11
12 COEX_E_PARAMS ::= SEQUENCE OF COEX_E_PARAM
13

```

14 Table 7 describes parameters of data types of event service of Coexistence Media SAP.

15

16 Table 7 – Parameters of data types of event service of Coexistence Media SAP

Name	Type	Valid range	Description	Note
BSSID	STRING	Any valid individual or broadcast MAC address	Identifies a specific or wildcard BSSID that just started.	11-2007 Start(a new BSS)
Neighbour Change	NEIGHBOUR_CHANGE		A set of BSSID that	802.11-2007
InterfereLevels	INTERFERENCE_LEVELS			802.19.1 specific
AddedChannel List	LIST_TV_CHANNELS	Specified in regulatory domain	This parameter indicates the changes on the available channels by specifying a list of channel numbers that become available.	802.19.1 specific
Removed ChannelList	LIST_TV_CHANNELS	Specified in regulatory domain	This parameter indicates the changes on the available channels by specifying a list of channel numbers that are no more available.	802.19.1 specific
Neighbour Change	NEIGHBOUR_CHANGE		A set of BSSID that	802.19.1
Updated Network Channels	NET_CHANNELS		Indicates the changes of network channels	802.19.1

17

### 18 5.3.1.5 Common data types

19 The following common data types are defined. They are used in the data type definitions of several services  
20 of Coexistence Media SAP.

21

```

1  TU ::= INTEGER
2
3  PHY_PARAM_SET ::= SET{
4      aSlotTime                INTEGER
5      aSIFSTime                INTEGER
6      aCCATime                 INTEGER
7      aPHY-RX-START-Delay      INTEGER
8      aRxTxTurnaroundTime      INTEGER
9      aTxPLCPDelay             INTEGER
10     aRxPLCPDelay             INTEGER
11     aRxTxSwitchTime          INTEGER
12     aTxRampOnTime            INTEGER
13     aTxRampOffTime           INTEGER
14     aTxRFDelay               INTEGER
15     aRxRFDelay               INTEGER
16     aAirPropagationTime      INTEGER
17     aMACProcessingDelay       INTEGER
18     aPreambleLength          INTEGER
19     aPLCPHeaderLength        INTEGER
20     aMPDUDurationFactor      INTEGER
21     aMPDUMaxLength           INTEGER
22     aCWmin                   INTEGER
23     aCWmax                   INTEGER
24 }
25
26  CF_PARAM_SET ::= SET{
27     CfpCount                  INTEGER
28     CfpPeriod                 INTEGER
29     CfpMaxDur                 TU
30     CfpDurRem                 TU
31 }
32
33  BSS_CAPA_INFO ::= SET{
34     ESS                        BOOLEAN
35     IBSS                       BOOLEAN
36     CFPollable                 BOOLEAN
37     CFPollRequest              BOOLEAN
38     Privacy                    BOOLEAN
39     ShortPreamble              BOOLEAN
40     PBCC                       BOOLEAN
41     ChannelAgility             BOOLEAN
42     SpectrumMgmt              BOOLEAN
43     QoS                        BOOLEAN
44     ShortSlotTime              BOOLEAN
45     APSD                       BOOLEAN
46     DSSSOFDM                  BOOLEAN
47     DelayedBlockAck            BOOLEAN
48     ImmediateBlockAck          BOOLEAN
49 }
50
51  BSS_LOAD ::= SET{
52     STACount                   INTEGER
53     CHUtilization              INTEGER
54     AvailableAdmissionCap      INTEGER
55 }
56
57  NEIBR_BSS ::= SEQUENCE{

```



```

1      NeighbourBSSID          BSSID,
2      NeighbourBSSChannel    INTEGER
3  }
4
5  NEIBR_BSS_SET ::= SEQUENCE OF NEIBR_BSS
6
7  TV_CHANNEL_NUMBER ::= INTEGER
8
9  TV_CHANNEL_NUMBERS ::= SEQUENCE OF TV_CHANNEL_NUMBER
10
11 TV_POWER_LIMIT ::= INTEGER
12
13 TV_POWER_LIMITS ::= SEQUENCE OF TV_POWER_LIMIT
14
15 LIST_TV_CHANNELS ::= SEQUENCE{
16     NumTVChannels          INTEGER,
17     TimeStamp              TU,
18     TVChannelNums          TV_CHANNEL_NUMBERS,
19     TVChannelPowerLimits   TV_POWER_LIMITS
20 }
21

```

22 Table 8 describes parameters of LIST\_TV\_CHANNELS data type.

23

24

Table 8 – Parameters of LIST\_TV\_CHANNELS data type

Name	Type	Valid range	Description	Note
NumberOfTV Channels	INTEGER	Depends on country	The number of available TV channels. The parameter also specifies the vector size of information element xxx.2 and xxx.3	802.11af whitespace map
TimeStamp	TU		It indicates the TSF timestamp when a STA accesses TV bands database to get the White Space Map information	
TVChannel Numbers	SEQUENCE OF INTEGER		Specifies the list of TV channels for a given regulatory domin	
TVChannel PowerLimits	SEQUENCE OF INTEGER		Specifies the power constraints of availbel TV channels	

25

```

26 NETWORK_CHANNEL ::= SEQUENCE{
27     OperationClass          INTEGER,
28     NumberofNetworkChannels INTEGER,
29     NetworkChannelNumber    INTEGER,
30     NetworkChPowerConstraint REAL
31 }
32

```

1 Table 9 describes parameters of NETWORK\_CHANNEL data type.

2

3

Table 9 – Parameters of NETWORK\_CHANNEL data type

Name	Type	Valid range	Description	Note
NumberOf Network Channel	INTEGER		The number of available network channels for 802.11 devices. The parameter also specifies the vector size of information element xxx.1, xxx.2 and xxx.3	802.11af network channel enablement
OperationClass	INTEGER		It indicates the operation classes that the listed network channels apply.	
Network Channel Number	INTEGER		Specifies the list of network channels for a given regulatory domin	
NetworkCh Power Constraint	rREAL		Specifies the power constraints of availbel network channels	

4

5

NETWORK\_CHANNELS ::= SEQUENCE OF NETWORK\_CHANNEL

6

7

POLARIZATION ::= ENUMERATED{

8

Linear,

9

Elliptical,

10

Circular,

11

...

12

}

13

ANTENNA\_GAIN ::= SEQUENCE{

15

Country

STRING,

16

TVChannelNumber

TV\_CHANNEL\_NUMBER,

17

AntennaGain

REAL

18

}

19

20

ANTENNA\_GAINS ::= SEQUENCE OF ANTENNA\_GAIN

21

22

ANTENNA\_INFO ::= SEQUENCE{

23

AntennaBandwidth

REAL,

24

AntennaBeamPointing

REAL,

25

AntennaBeamwidth

REAL,

26

AntennaDirectivityGain

REAL,

27

AntennaHeight

REAL,

28

AntennaPolarization

POLARIZATION,

29

AntennaGains

ANTENNA\_GAINS

30

}

31

32

Table 10 describes parameters of ANTENNA\_INFO data type.

33

1

Table 10 – Parameters of ANTENNA\_INFO data type

Name	Type	Valid range	Description	Note
Antenna Bandwidth	REAL		Bandwidth of the antenna used at the TV band devices.	1900.6
AntennaBeam Pointing	REAL		The DataSeet.AntennaBeamPo inting parameter specifies the beam pointing direction of the antenna used at the spectrum measurement module by giving the azimuthal angle with respect to North and elevation angle with respect to the horizon.	
Antenna Beamwidth	REAL		Beamwidth of the antenna used at the spectrum measurement module, normally specified as half-power horizontal and vertical beamwidth.	
Antenna DirectivityGain	REAL		Directivity gain in dBi of the antenna radiation pattern at the TV band devices.	
AntennaHeight	REAL		Height of the antenna in meters with respect to sea level. (cf. 6.3.32)	
Antenna Polarization	ENUMERATED		Polarization of the antenna used at the TV band devices. (cf. 6.3.32) 0: Linear polarization 1: Circular polarization 2: Elliptical polarization	
AntennaGain	ANTENNA_GAINS		Power gain in dB of the antenna used at the TV band devices for a list of TV channels.	

2

```

3 TVBD_INFO ::= ENUMERATED{
4     WRAN_BS ,
5     WRAN_CPE ,
6     WLANSTA ,
7     WLANAP ,
8     MAN_AP ,
9     MAN_STA
10    ...
11 }
12
13 NEIGHBOUR ::= SEQUENCE{

```

```

1     TVBDID,                               STRING,
2     TVBDInfo                               TVBD_INFO,
3     TVBDOccupiedChannels,                 LIST_TV_CHANNELS,
4     Mobility                               MOBILITY,
5     ...
6 }
7
8 LIST_NEIGHBOURS ::= SEQUENCE OF NEIGHBOUR
9
10 MOBILITY ::= ENUMERATED{
11     FIXED,
12     MOBILE,
13     ...
14 }
15
16 CHANNEL_SWITCH_MODE ::= ENUMERATED{
17     TXRestricted,
18     NOTRestricted
19 }
20
21 BSS_TYPE ::= ENUMERATED{
22     INFRASTRUCTURE,
23     INDEPENDENT,
24     ANYBSS
25 }
26
27 SCAN_TYPE ::= ENUMERATED{
28     ACTIVE,
29     PASSIVE
30 }
31
32 CH_MEASU_TYPE ::= ENUMERATED{
33     BASIC,
34     CCA,
35     RPI
36 }
37
38 SENSING_WINDOW ::= SEQUENCE{
39     NumSensingPeriods                INTEGER,
40     SensingPeriodDuration            INTEGER,
41     SensingPeriodInterval            INTEGER
42 }
43

```

44 Table 11 describes parameters of SENSING\_WINDOW data type.

45

46

Table 11 – Parameters of SENSING\_WINDOW data type

Name	Type	Valid range	Description	Note
NumSensing Periods	INTEGER	0 to 63	The number of sensing periods	802.22 SM-SSF
SensingPeriod Duration	INTEGER	0 to 1023	Duration of each sensing in terms of the number symbols	

SensingPeriod Interval	INTEGER	0 to 2047	Duration of interval in terms of the number of frames.	
------------------------	---------	-----------	--------------------------------------------------------	--

1

2 SIGNAL\_TYPE ::= ENUMERATED{

3 Any,

4 802.22WRAN,

5 ATSC,

6 DVB\_T,

7 ISDB\_T,

8 NTSC,

9 PAL,

10 SECAM,

11 Microphone,

12 802.22.1SyncBurst,

13 802.22.1PPDUMFS1,

14 802.22.1PPDUMSF2,

15 802.22.1PPDUMSF3,

16 MedicalTele,

17 Studio,

18 ...

19 }

20

21 SENSING\_MODE ::= ENUMERATED{

22 Hard,

23 HardWithConfidenceValue,

24 Soft,

25 SoftWithConfidenceValue

26 }

27

28 PERF\_METRIC ::= SEQUENCE{

29 PerfMetricPd INTEGER,

30 PerfMetricPfa INTEGER

31 }

32

33 Table 12 describes parameters of PERF\_METRIC data type.

34

35

Table 12 – Parameters of PERF\_METRIC data type

Name	Type	Valid range	Description	Note
PerfMetricPd	INTEGER			When the PerformanceMetric.pd is specified sensors perform sensing by setting the rate of detection according to this value. Rate of detection is expressed as a percentage bounded between 0% and 100%.
PerfMetricPfa	INTEGER			When the PerformanceMetric.pfa is specified sensors perform sensing by setting the rate of false alarm according this value. Rate of false alarm is expressed as a percentage

				bounded between 0% and 100%.
--	--	--	--	------------------------------

1

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```

BASIC_REPORT ::= SEQUENCE{
    BSS                BOOLEAN,
    OFDM               BOOLEAN,
    UnidentifiedSignal BOOLEAN,
    PrimaryServiceSignal BOOLEAN,
    Unmeasured         BOOLEAN,
    ...
}
    
```

11

Table 13 describes parameters of BASIC\_REPORT data type.

12

13

Table 13 – Parameters of BASIC\_REPORT data type

Name	Type	Valid range	Description	Note
BSS	BOOLEAN		BSS bit, which shall be set to 1 when at least one valid MPDU was received in the channel during the measurement period from another BSS or IBSS. Otherwise, the BSS bit shall be set to 0.	
OFDM	BOOLEAN		OFDM preamble bit, which shall be set to 1 when at least one sequence of short training symbols, as defined in 17.3.3, was detected in the channel during the measurement period without a subsequent valid Signal field (see 17.3.4). This may indicate the presence of an OFDM preamble, such as highperformance RLAN/2 (HIPERLAN/2). Otherwise, the OFDM preamble bit shall be set to 0.	
Unidentified Signal	BOOLEAN		May be set to 1 when significant power is detected in the channel during the measurement period that cannot be characterized as radar, an OFDM preamble, or a valid	

			MPDU. Otherwise, the Unidentified Signal bit shall be set to 0. The definition of significant power is implementation dependent.	
PrimaryService Signal	BOOLEAN		Shall be set to 1 when primary service signals was detected operating in the channel during the measurement period. The algorithm to detect radar shall satisfy regulatory requirements and is outside the scope of this standard. Otherwise, the Radar bit shall be set to 0.	
Unmeasured	BOOLEAN		Shall be set to 1 when this channel has not been measured. Otherwise, the Unmeasured bit shall be set to 0. When the Unmeasured field is set to 1, all the other bit fields shall be set to 0.	

1

```

2 CCA_REPORT ::= SEQUENCE {
3   CCABusy          REAL,
4   ...
5 }
6

```

7 Table 14 describes parameters of CCA\_REPORT data type.

8

9

Table 14 – Parameters of CCA\_REPORT data type

Name	Type	Valid range	Description	Note
CCABusy	REAL	From 0 to 1	The CCA Busy Fraction field shall contain the fractional duration over which CCA indicated the channel was busy during the measurement duration. The resolution of the CCA busy measurement is in microseconds. The CCA Busy Fraction value is defined as Ceiling (255 * [Duration CCA indicated channel was busy	

			(microseconds)] / (1024 * [Measurement duration (TUs)]).	
--	--	--	----------------------------------------------------------	--

1

2

3

4

5

6

7

8

9

10

11

12

```
RPI_REPORT ::= SEQUENCE{
    RPIHistogramReportRPI0Density0    INTEGER,
    RPIHistogramReportRPI0Density1    INTEGER,
    RPIHistogramReportRPI0Density2    INTEGER,
    RPIHistogramReportRPI0Density3    INTEGER,
    RPIHistogramReportRPI0Density4    INTEGER,
    RPIHistogramReportRPI0Density5    INTEGER,
    RPIHistogramReportRPI0Density6    INTEGER,
    RPIHistogramReportRPI0Density7    INTEGER
}
```

13

Table 15 describes parameters of RPI\_REPORT data type.

14

15

Table 15 – Parameters of RPI\_REPORT data type

Name	Type	Valid range	Description	Note
RPIHistogramReportRPI0Density0	INTEGER	0~255	Density for Power $\leq -87$	
RPIHistogramReportRPI0Density1	INTEGER	0~255	Density for $-87 < \text{Power} \leq -82$	
RPIHistogramReportRPI0Density2	INTEGER	0~255	Density for $-82 < \text{Power} \leq -77$	
RPIHistogramReportRPI0Density3	INTEGER	0~255	Density for $-77 < \text{Power} \leq -72$	
RPIHistogramReportRPI0Density4	INTEGER	0~255	Density for $-72 < \text{Power} \leq -67$	
RPIHistogramReportRPI0Density5	INTEGER	0~255	Density for $-67 < \text{Power} \leq -62$	
RPIHistogramReportRPI0Density6	INTEGER	0~255	Density for $-62 < \text{Power} \leq -57$	
RPIHistogramReportRPI0Density7	INTEGER	0~255	Density for $-57 < \text{Power}$	

16

17

18

19

20

21

```
CH_MEASU_REPORT ::= CHOICE{
    BasicReport        BASIC_REPORT,
    CCAReport          CCA_REPORT,
    RPIHistogramReport RPI_REPORT
}
```



```

1
2 INTERVAL ::= SEQUENCE{
3     IntervalStart      REAL,
4     IntervalStop       REAL
5 }
6
7 CONFIDENCE_LEVEL ::= SEQUENCE{
8     ConfidenceLevelValue      REAL,
9     ConfidenceLevelInterval   INTERVAL
10 }
11
12 MODE0RESULT ::= SEQUENCE{
13     SignalType      SIGNAL_TYPE,
14     Presence        BOOLEAN
15 }
16
17 MODE0RESULTS ::= SEQUENCE OF MODE0RESULT
18

```

19 Table 16 describes parameters of MODE0RESULT data type.

20

21 Table 16 – Parameters of MODE0RESULT data type

Name	Type	Valid range	Description	Note
SignalType	SIGNAL_TYPE			
Presence	BOOLEAN	0 or 1	For each signal type the SSF generates a binary decision as to whether the signal is present in the television channel	IEEE 802.22

22

```

23 MODE1RESULT ::= SEQUENCE{
24     Mode0Result      MODE0RESULT,
25     ConfidenceLevel  CONFIDENCE_LEVEL
26 }
27
28 MODE1RESULTS ::= SEQUENCE OF MODE1RESULT
29

```

30 Table 17 describes parameters of MODE1RESULT data type.

31

32 Table 17 – Parameters of MODE1RESULT data type

Name	Type	Valid range	Description	Note
SignalType	SIGNAL_TYPE			
SignalPresence	BOOLEAN		For each signal type the SSF generates a binary decision as to whether the signal is present in the television channel	IEEE 802.22

Confidence Level	CONFIDENCE_LEVEL		Confidence of measurement result for each type of signal specified	IEEE 1900.6
------------------	------------------	--	--------------------------------------------------------------------	-------------

1

```

2 MODE2RESULT ::= SEQUENCE{
3   SignalType      SIGNAL_TYPE,
4   Strength        REAL
5 }
6
7 MODE2RESULTS ::= SEQUENCE OF MODE2RESULT
8

```

9 Table 18 describes parameters of MODE2RESULT data type.

10

11

Table 18 – Parameters of MODE2RESULT data type

Name	Type	Valid range	Description	Note
SignalType	SIGNAL_TYPE			
Strength	REAL		For each signal type the SSF generates an estimate of the field strength of that signal	IEEE 802.22

12

```

13 MODE3RESULT ::= SEQUENCE{
14   Mode2Result      MODE2RESULT,
15   StandardDeviation REAL
16 }
17
18 MODE3RESULTS ::= SEQUENCE OF MODE3RESULT
19

```

20 Table 19 describes parameters of MODE3RESULT data type.

21

22

Table 19 – Parameters of MODE3RESULT data type

Name	Type	Valid range	Description	Note
SignalType	SIGNAL_TYPE			
Strength	REAL		For each signal type the SSF generates an estimate of the field strength of that signal	IEEE 802.22
Standard Deviatoin	REAL		The standard deviation of the field strength estimate from sensing mode	IEEE 802.22

23

```

24 SENSING_RESULT ::= CHOICE{

```

```

1   Mode0Results          MODE0RESULTS,
2   Mode1Results          MODE1RESULTS,
3   Mode2Results          MODE2RESULTS,
4   Mode3Results          MODE3RESULTS
5   }
6
7   TRANSMISSIONINTERVAL ::= SEQUENCE{
8     TransmissionStart    TU,
9     TransmissionDuration TU,
10    TransmissionChannel   Network_CHANNEL
11  }
12
13  TRANSMISSIONSEQUENCE ::= SEQUENCE OF TRANSMISSIONINTERVAL
14
15  SCHEDULE ::= SEQUENCE{
16    SchedulingStartTime   TU,
17    SchedulingPeriodDuration TU,
18    NumberOfSchedulingPeriods INTEGER,
19    TransmissionSequence  TRANSMISSIONSEQUENCE
20  }
21
22  INTERFERENCE_LEVEL ::= SEQUENCE{
23    NetworkChannel         NETWORK_CHANNEL,
24    Interference           REAL
25  }
26
27  INTERFERENCE_LEVELS ::= SEQUENCE OF INTERFERENCE_LEVEL
28
29  NEIGHBOUR_CHANGE ::= SEQUENCE{
30    AddedBSSs              SEQUENCE OF STRING,
31    RemovedBSSs           SEQUENCE OF STRING
32  }
33

```

### 34 5.3.2 Coexistence Transport SAP data types

35 The following data types are defined for Coexistence Transport SAP.

36

```

37  TRANSPORT_PREF ::= ENUMERATED{
38    TCP,
39    UDP,
40    HTTP,
41    SNMP,
42    ...
43  }
44
45  TRANSPORT_ADDR ::= OCTET_STRING
46

```

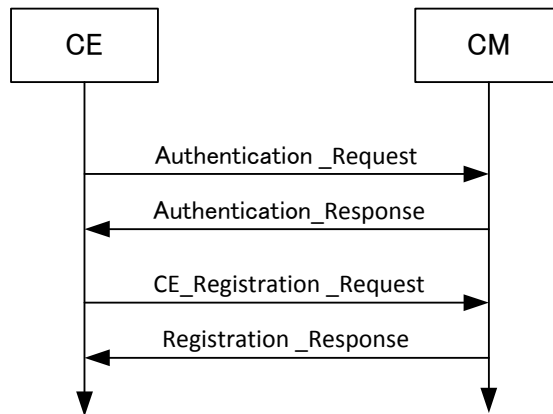
## 47 6. Procedures and protocols

1 **6.1 Procedures**

2 **6.1.1 Registration procedures**

3 **6.1.1.1 CE authentication and registration**

4 This procedure is used by CE to authenticate itself to CM and to register information of its TVBD network  
 5 or device to CM. The procedure is shown in the following Figure.



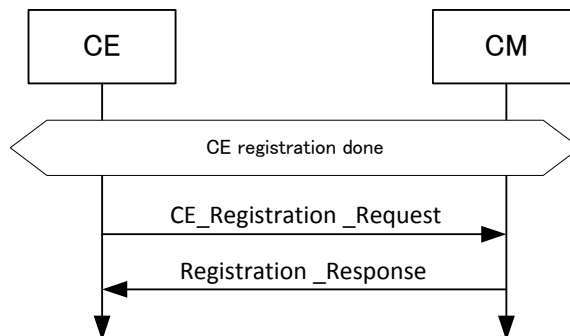
6

7

**Figure 6 CE authentication and registration procedure**

8 **6.1.1.2 CE registration update**

9 This procedure is used by CE to update information of its TVBD network or device to CM. The procedure  
 10 is shown in the following Figure.



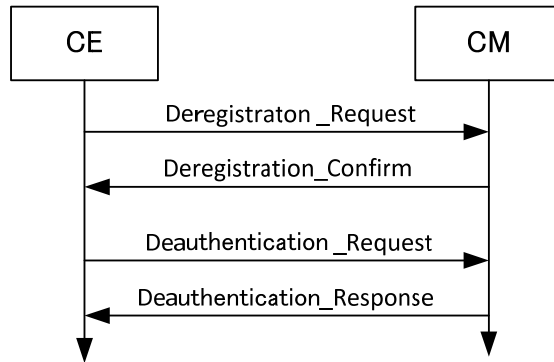
11

12

**Figure 7 CE registration update procedure**

13 **6.1.1.3 CE deregistration and deauthentication**

14 This procedure is used by CE to deregister its TVBD network or device from CM and to deauthenticate  
 15 itself from CM. The procedure is shown in the following Figure.



1

2

**Figure 8 CE deregistration and deauthentication procedure**

3

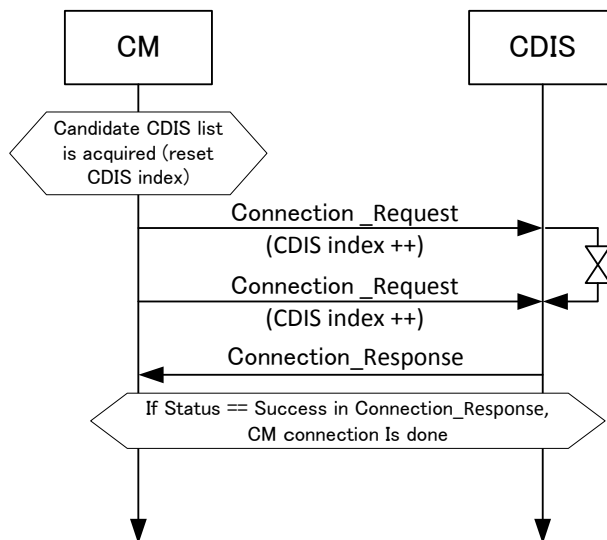
**6.1.1.4 CM connection to CDIS**

4

Before connecting to CDIS, CM has list of candidate CDISs. This procedure is used by CM to find the first

5

CDIS from the list that can serve this CM. The procedure is shown in the following Figure.



6

7

**Figure 9 CM connection to CDIS procedure**

8

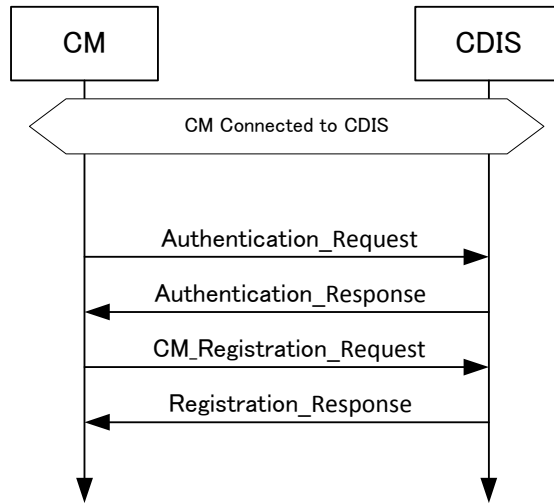
**6.1.1.5 CM authentication and registration**

9

This procedure is used by CM to authenticate itself to CDIS and to register information of its TVBD

10

networks and devices to CDIS. The procedure is shown in the following Figure.



1

2

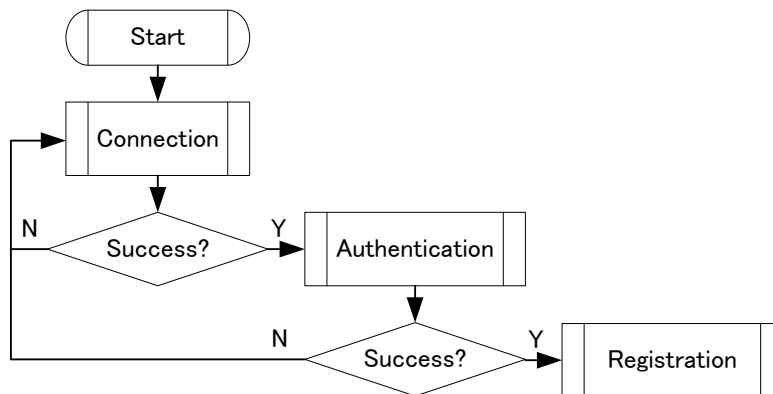
**Figure 10 CM authentication and registration procedure**

3

Relation between CM connection to CDIS and CM authentication/registration is shown in the following

4

Figure.



5

6

**Figure 11 Relation between CM connection to CDIS and CM authentication/registration**

7

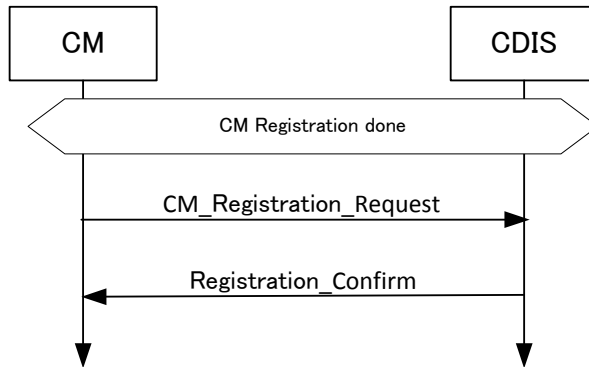
8

**6.1.1.6 CM registration update**

9

This procedure is used by CM to update information of its TVBD networks and devices to CDIS. The procedure is shown in the following Figure.

10



1

2

**Figure 12 CM registration update procedure**

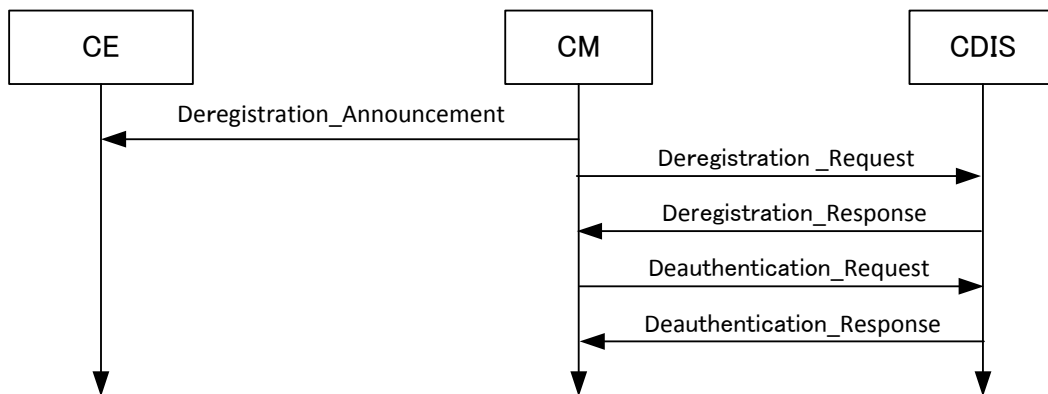
3

**6.1.1.7 CM deregistration and deauthentication**

4

This procedure is used by CM to deregister its TVBD networks and devices from CDIS and to deauthenticate itself from CDIS. The procedure is shown in the following Figure.

5



6

7

**Figure 13 CM deregistration and deauthentication procedure**

8

**6.1.2 Neighbour discovery procedures**

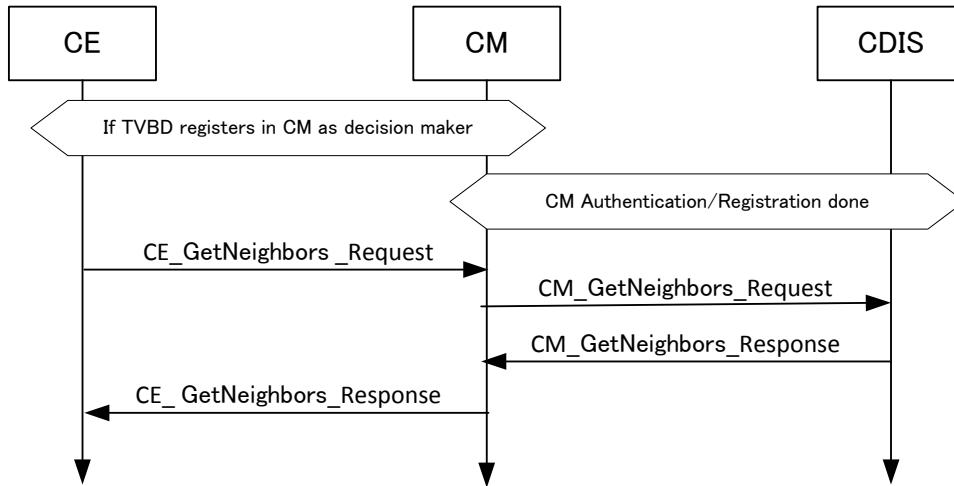
9

**6.1.2.1 CE neighbour discovery**

10

This procedure is used by CE to obtain information on neighbours for TVBD network or device served by this CE. The procedure is shown in the following Figure.

11



1

2

**Figure 14 CE neighbour discovery procedure**

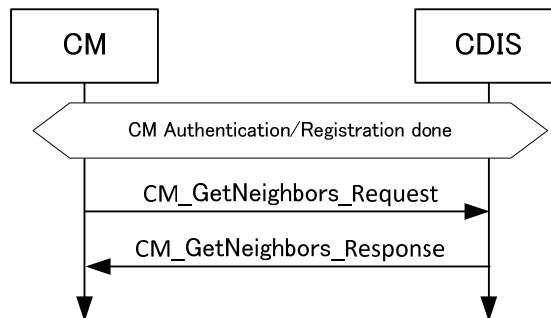
3

**6.1.2.2 CM neighbour discovery**

4

This procedure is used by CM to obtain information on neighbours for one TVBD network or device served by this CM. The procedure is shown in the following Figure.

5



6

7

**Figure 15 CM neighbour discovery procedure**

8

**6.1.3 Get available channel list procedures**

9

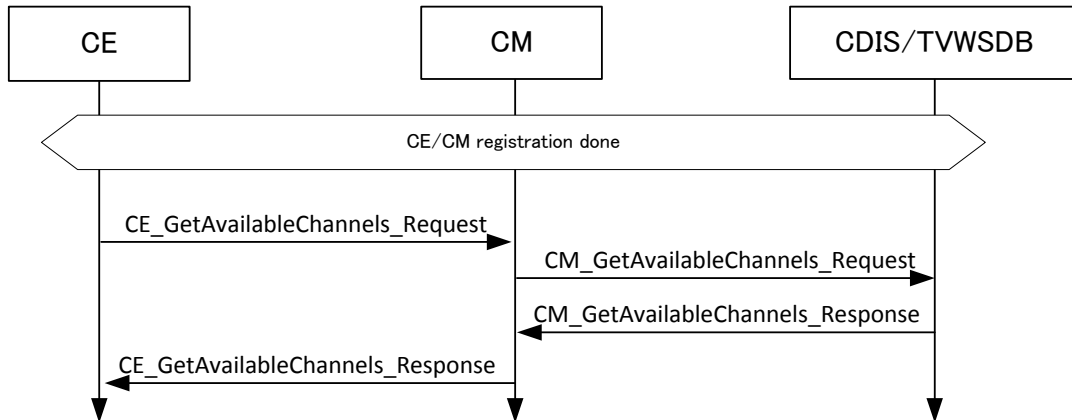
**6.1.3.1 CE acquires available channel list from CM**

10

This procedure is used by CE to obtain available channel list from CM. The procedure is shown in the following Figure.

11





1

2

**Figure 16 CE acquires available channel list from CM**

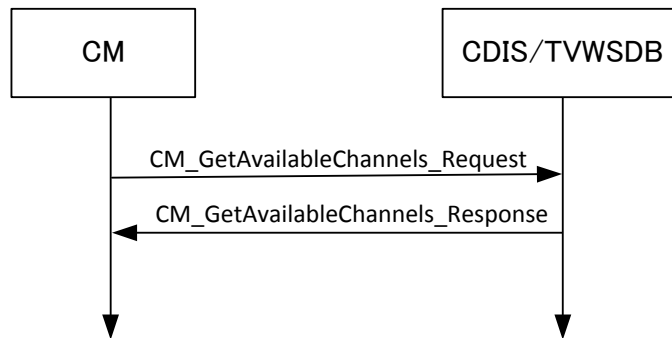
3

**6.1.3.2 CM acquires available channel list from CDIS or TV WS database**

4

This procedure is used by CM to obtain available channel list from CDIS or TV WS database. The procedure is shown in the following Figure.

5



6

7

**Figure 17 CM acquires available channel list from CDIS or TV WS database**

8

**6.1.4 Measurement procedures**

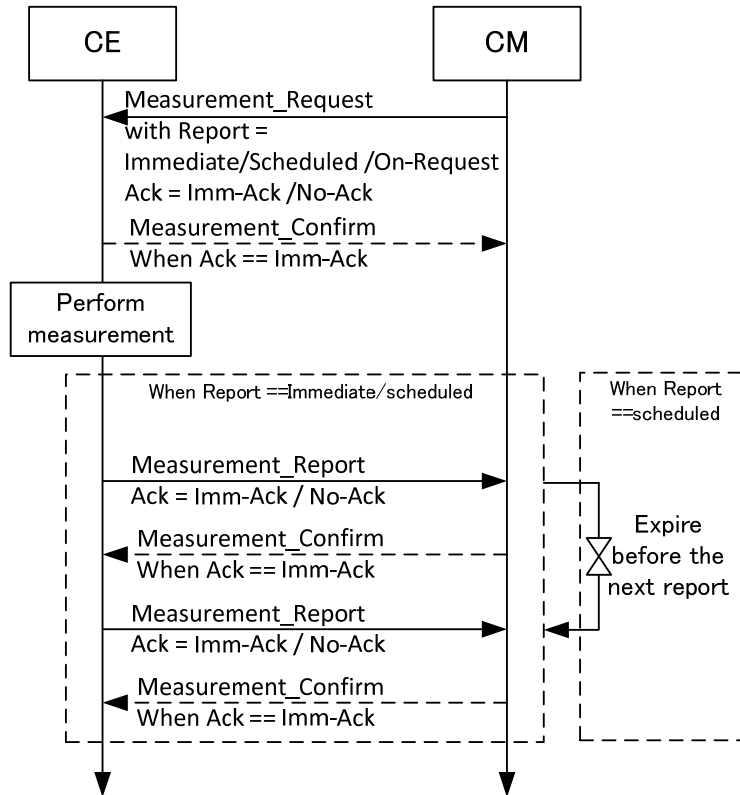
9

**6.1.4.1 Measurement request and report**

10

This procedure is used by CM to request CE to perform measurements and to obtain measurement results from CE. The procedure is shown in the following Figure.

11



1

2

**Figure 18 Measurement and report procedure**

3

When report type is set to on-demand value, the measurement results are collected from CE by using CE information collection procedure.

4

5 **6.1.5 Information collection procedures**

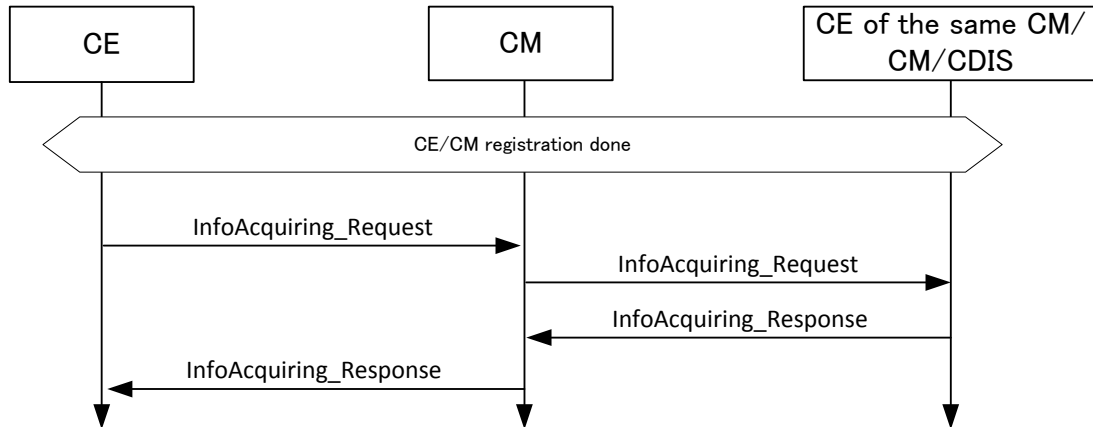
6 **6.1.5.1 CE information collection**

7

This procedure is used by CE to collect information from CM. The procedure is shown in the following

8

Figure.



1

2

**Figure 19 CE information collection procedure**

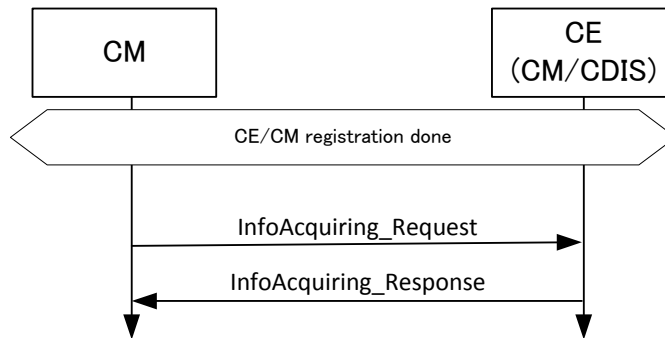
3

**6.1.5.2 CM information collection**

4

This procedure is used by CM to collect information from CE, another CM, or CDIS. The procedure is shown in the following Figure.

5



6

7

**Figure 20 CM information collection procedure**

8

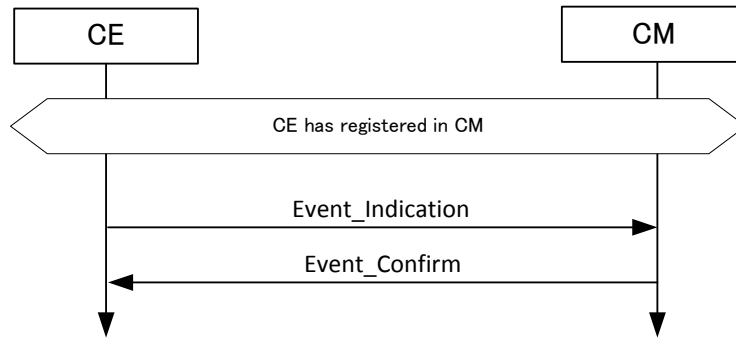
**6.1.6 Event procedures**

9

**6.1.6.1 Event from CE to CM**

10

This procedure is used by CE to indicate an event to CM. The procedure is shown in the following Figure.



1

2

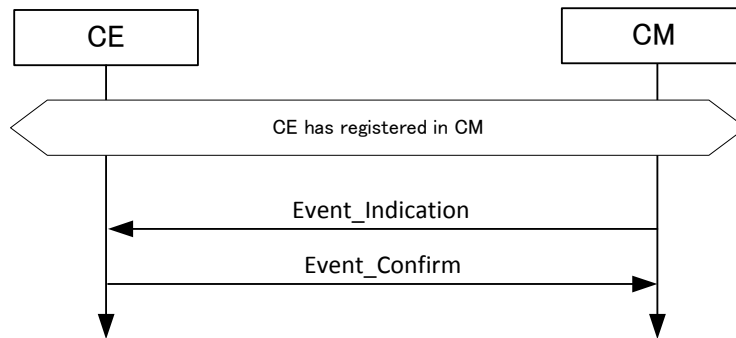
**Figure 21 Event from CE to CM procedure**

3

**6.1.6.2 Event from CM to CE**

4

This procedure is used by CM to indicate an event to CE. The procedure is shown in the following Figure.



5

6

**Figure 22 Event from CM to CE procedure**

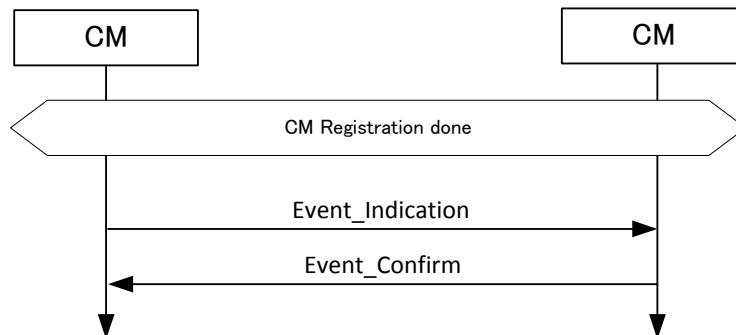
7

**6.1.6.3 Event from CM to CM**

8

This procedure is used by CM to indicate an event to another CM. The procedure is shown in the following Figure.

9

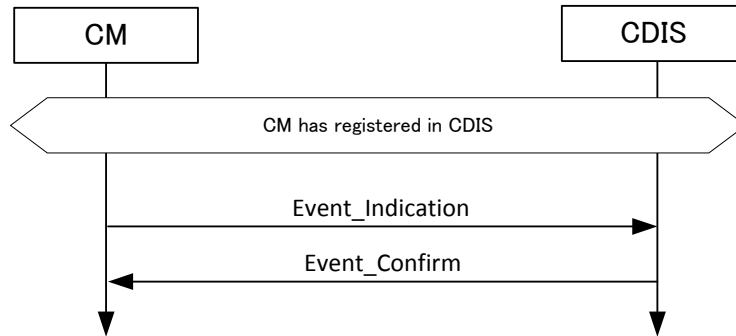


10

1 **Figure 23 Event from CM to CM procedure**

2 **6.1.6.4 Event from CM to CDIS**

3 This procedure is used by CM to indicate an event to CDIS. The procedure is shown in the following  
4 Figure.

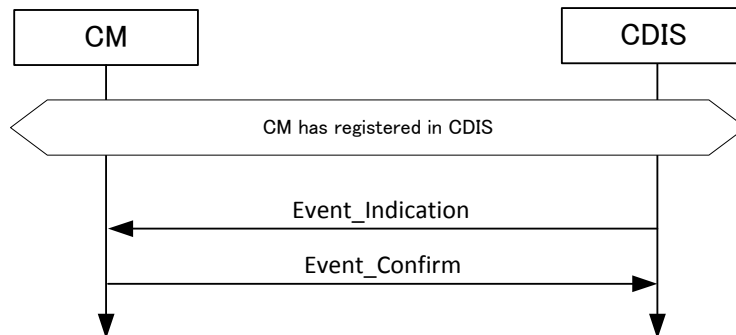


5

6 **Figure 24 Event from CM to CDIS procedure**

7 **6.1.6.5 Event from CDIS to CM**

8 This procedure is used by CDIS to indicate an event to CM. The procedure is shown in the following  
9 Figure.



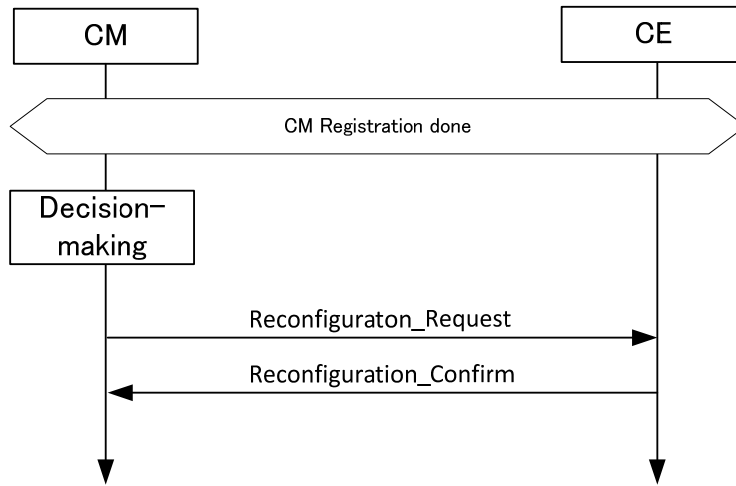
10

11 **Figure 25 Event from CDIS to CM procedure**

12 **6.1.7 Reconfiguration procedures**

13 **6.1.7.1 CE reconfiguration**

14 This procedure is used by CM to request reconfiguration of one of its TVBD network or device.



1

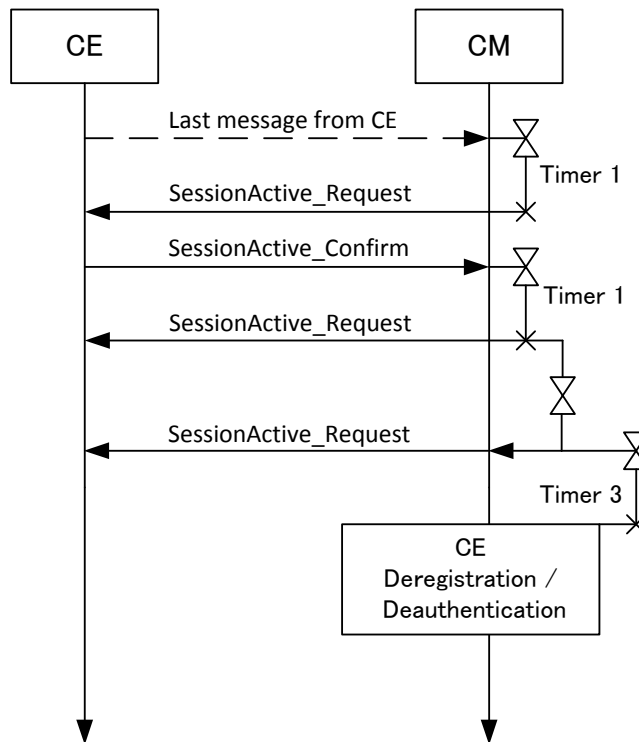
2

**Figure 26 CE reconfiguration procedure**

3 **6.1.8 Session activity check procedures**

4 **6.1.8.1 CE session activity check**

5 This procedure is used by CM to check that session with one of its CEs is still active.

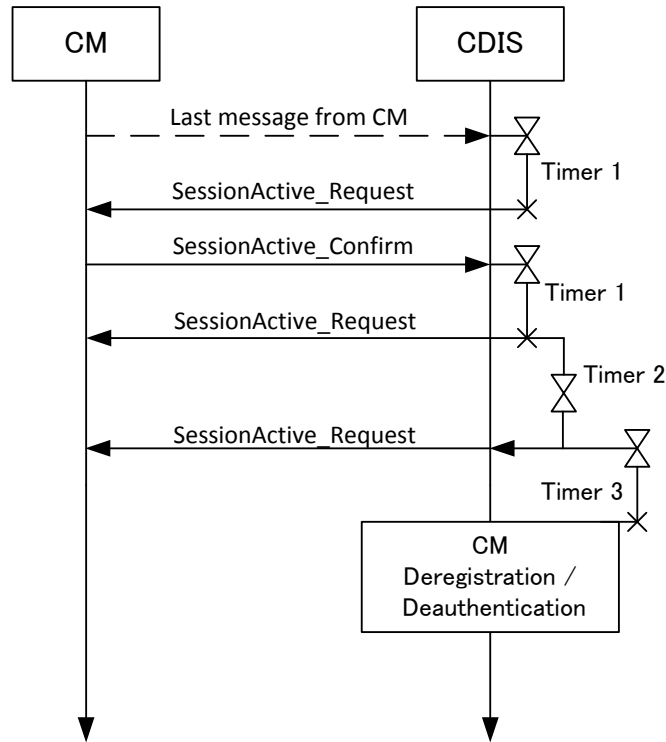


6

1 **Figure 27 CE session activity check procedure**

2 **6.1.8.2 CM session activity check**

3 This procedure is used by CDIS to check that session with one of CMs is still active.



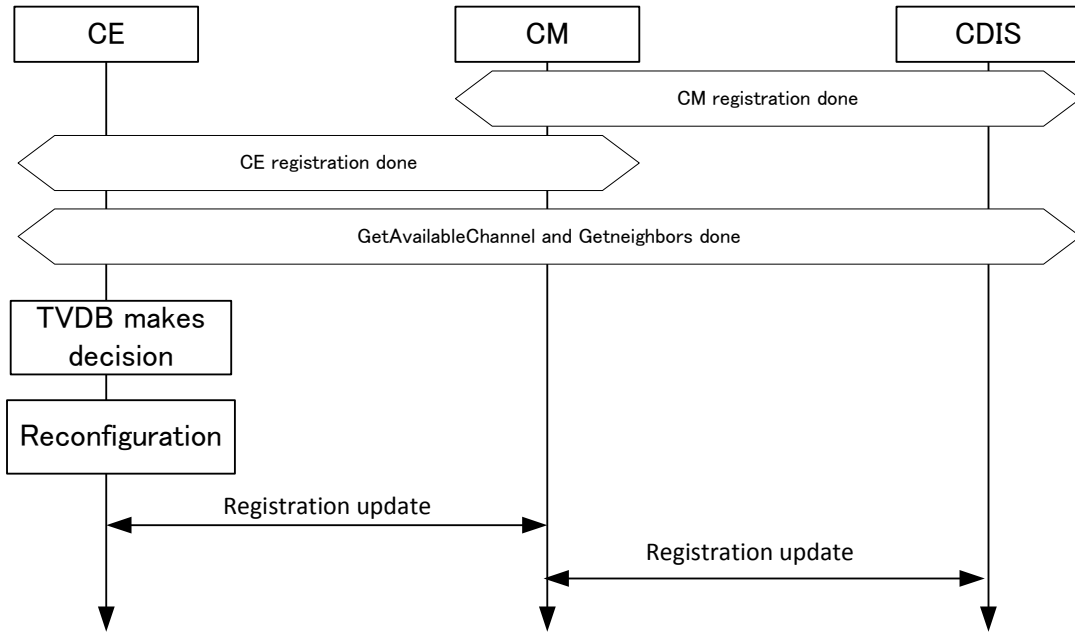
4

5 **Figure 28 CM session activity check procedure**

6 **6.1.9 Examples of using procedures (informative)**

7 **6.1.9.1 Coexistence decisions are done by TVBD**

8 The following Figure shows example of using the above described procedure for scenario when decisions  
 9 are done by TVBD network or device.



1

2

**Figure 29 Coexistence decisions are done by TVBD**

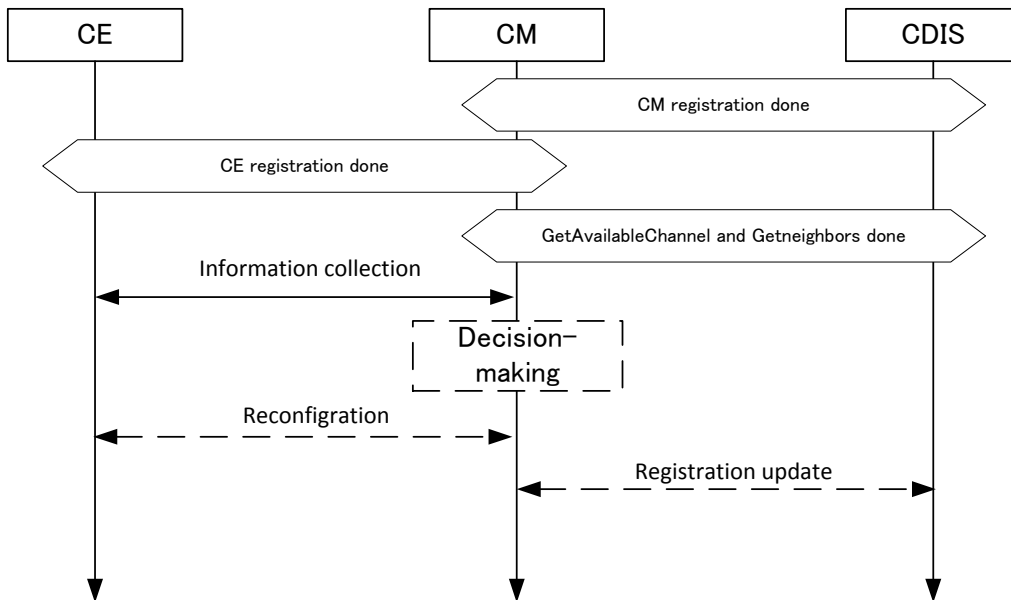
3

**6.1.9.2 Coexistence decisions are done by Coexistence System**

4

The following Figure shows example of using the above described procedure for scenario when decisions are done by coexistence system.

5



6

7

**Figure 30 Coexistence decisions are done by Coexistence System**



1 **6.2 Messages**

2 **6.2.1 Registration procedure messages**

3 **6.2.1.1 Authentication\_Request**

4 This message is sent from CE to CM to login to CM. Also, this message is sent from CM to CDIS to login  
5 to CDIS.

<b>Header</b>		
<i>Information element</i>	<i>Value</i>	<i>Description</i>
Source Identifier	CE/CM ID	Source identifier
Destination Identifier	CM/CDIS ID	Destination identifier
ACK Policy	ACK required / ACK not required	Request to send acknowledgement of reception
<b>Payload</b>		
<i>Information element</i>	<i>Value</i>	<i>Description</i>
TBD	TBD	Authentication related data

6 **6.2.1.2 Authentication\_Response**

7 This message is sent from CM to CE to confirm or reject CE authentication. Also, this message is sent from  
8 CDIS to CM to confirm or reject CM authentication.

<b>Header</b>		
<i>Information element</i>	<i>Value</i>	<i>Description</i>
Source Identifier	CM/CDIS ID	Source identifier
Destination Identifier	CE/CM ID	Destination identifier
ACK Policy	ACK required / ACK not required	Request to send acknowledgement of reception
<b>Payload</b>		
<i>Information element</i>	<i>Value</i>	<i>Description</i>
TBD	TBD	Authentication related data
Status	Success / Failure	Status

9 **6.2.1.3 Deauthentication\_Request**

10 This message is sent from CE to CM to logoff from CM. Also, this message is sent from CM to CDIS to  
11 logoff from CDIS.

<b>Header</b>		
<i>Information element</i>	<i>Value</i>	<i>Description</i>
Source Identifier	CE/CM ID	Source identifier
Destination Identifier	CM/CDIS ID	Destination identifier
ACK Policy	ACK required / ACK not required	Request to send acknowledgement of reception
<b>Payload</b>		
<i>Information element</i>	<i>Value</i>	<i>Description</i>
TBD	TBD	Authentication related data
TBD	TBD	Reason

1 **6.2.1.4 Deauthentication\_Response**

2 This message is sent from CM to CE to confirm or reject CE deauthentication. Also, this message is sent  
 3 from CM to CE to confirm or reject CE deauthentication.

<b>Header</b>		
<i>Information element</i>	<i>Value</i>	<i>Description</i>
Source Identifier	CM ID	Source identifier
Destination Identifier	CE ID	Destination identifier
ACK Policy	ACK required / ACK not required	Request to send acknowledgement of reception
<b>Payload</b>		
<i>Information element</i>	<i>Value</i>	<i>Description</i>
TBD	TBD	Authentication related data
Status	Success / Failure	Status

4 **6.2.1.5 CE\_Registration\_Request**

5 This message is sent from CE to CM to register information of TVBD network or device served by this CE  
 6 to CM. This message is used for initial registration or for registration update.

<b>Header</b>		
<i>Information element</i>	<i>Value</i>	<i>Description</i>
Source Identifier	CE ID	Source identifier
Destination Identifier	CM ID	Destination identifier
ACK Policy	ACK required / ACK not required	Request to send acknowledgement of reception
<b>Payload</b>		
<i>Information element</i>	<i>Value</i>	<i>Description</i>
Operation code	New / Update	Indicates whether this is new registration or registration update
Network ID	TBD	E.g., FCC ID of TVBD network or device
Network Type	TBD	E.g., 802.11af, 802.22
Subscribed coexistence service	TBD	Coexistence service to which TVBD network or device served by this CE is subscribed
TBD	TBD	Operating channels if any
TBD	TBD	Coverage related information

7 **6.2.1.6 CM\_Registration\_Request**

8 This message is sent from CM to CDIS to register information of TVBD networks or devices served by this  
 9 CM to CDIS. This message is used for initial registration or for registration update.

<b>Header</b>		
<i>Information element</i>	<i>Value</i>	<i>Description</i>
Source Identifier	CM ID	Source identifier
Destination Identifier	CDIS ID	Destination identifier
ACK Policy	ACK required / ACK not required	Request to send acknowledgement of reception
<b>Payload</b>		
<i>Information element</i>	<i>Value</i>	<i>Description</i>
Note: For each TVBD network or device, the information elements below are repeated.		

Operation code	New / Add / Modify / Remove	Indicates whether this is new registration, adding registration, modifying registration, or removing registration
Network ID	TBD	E.g., FCC ID of TVBD network or device
Network Type	TBD	E.g., 802.11af, 802.22
Subscribed coexistence service	TBD	Coexistence service to which TVBD network or device served by this CE is subscribed
TBD	TBD	Operating channels if any
TBD	TBD	Coverage related information

1 **6.2.1.7 Registration\_Response**

2 This message is sent from CM to CE to confirm the registration. Also, this message is sent from CDIS to  
3 CM to confirm the registration.

<b>Header</b>		
<i>Information element</i>	<i>Value</i>	<i>Description</i>
Source Identifier	CM/CDIS ID	Source identifier
Destination Identifier	CE/CM ID	Destination identifier
ACK Policy	ACK required / ACK not required	Request to send acknowledgement of reception
<b>Payload</b>		
<i>Information element</i>	<i>Value</i>	<i>Description</i>
Status	Success / Failure	Status

4 **6.2.1.8 Deregistration\_Announcement**

5 This message is sent from CM to CE to announce to CE that it will start deregistration procedure. This  
6 message does not have any payload.

<b>Header</b>		
<i>Information element</i>	<i>Value</i>	<i>Description</i>
Source Identifier	CM ID	Source identifier
Destination Identifier	CE ID	Destination identifier
ACK Policy	ACK required / ACK not required	Request to send acknowledgement of reception
<b>Payload</b>		
<i>Information element</i>	<i>Value</i>	<i>Description</i>
None	None	None

7 **6.2.1.9 Deregistration\_Request**

8 This message is sent from CE to CM to remove its registered record from CM. Also, this message is sent  
9 from CM to CDIS to remove its registered record from CDIS.

<b>Header</b>		
<i>Information element</i>	<i>Value</i>	<i>Description</i>
Source Identifier	CE/CM ID	Source identifier
Destination Identifier	CM/CDIS ID	Destination identifier
ACK Policy	ACK required / ACK not required	Request to send acknowledgement of reception

<b>Payload</b>		
<i>Information element</i>	<i>Value</i>	<i>Description</i>
TBD	TBD	Reason

1 **6.2.1.10 Deregistration\_Confirm**

2 This message is sent from CM to CE to confirm deregistration. Also, this message is sent from CDIS to  
3 CM to confirm deregistration.

<b>Header</b>		
<i>Information element</i>	<i>Value</i>	<i>Description</i>
Source Identifier	CM/CDIS ID	Source identifier
Destination Identifier	CE/CM ID	Destination identifier
ACK Policy	ACK required / ACK not required	Request to send acknowledgement of reception
<b>Payload</b>		
<i>Information element</i>	<i>Value</i>	<i>Description</i>
Status	Success / Failure	Status

4 **6.2.1.11 Connection\_Request**

5 This message is sent from CM to CDIS to check CDIS availability. This message does not have payload.

<b>Header</b>		
<i>Information element</i>	<i>Value</i>	<i>Description</i>
Source Identifier	CM ID	Source identifier
Destination Identifier	CDIS ID	Destination identifier
ACK Policy	ACK required / ACK not required	Request to send acknowledgement of reception
<b>Payload</b>		
<i>Information element</i>	<i>Value</i>	<i>Description</i>
None	None	None

6 **6.2.1.12 Connection\_Response**

7 This message is sent from CDIS to CM to indicate CDIS availability to provide service for the CM.

<b>Header</b>		
<i>Information element</i>	<i>Value</i>	<i>Description</i>
Source Identifier	CDIS ID	Source identifier
Destination Identifier	CM ID	Destination identifier
ACK Policy	ACK required / ACK not required	Request to send acknowledgement of reception
<b>Payload</b>		
<i>Information element</i>	<i>Value</i>	<i>Description</i>
Status	Success / Failure	Status

8 **6.2.2 Neighbour discovery procedure messages**

9 **6.2.2.1 CE\_GetNeighbors\_Request**

10 This message is sent form CE to CM for CE to request neighbour information from CM. This message does  
11 not have payload.

<b>Header</b>		
<i>Information element</i>	<i>Value</i>	<i>Description</i>
Source Identifier	CE ID	Source identifier
Destination Identifier	CM ID	Destination identifier
ACK Policy	ACK required / ACK not required	Request to send acknowledgement of reception
<b>Payload</b>		
<i>Information element</i>	<i>Value</i>	<i>Description</i>
None	None	None

1 **6.2.2.2 CE\_GetNeighbors\_Response**

2 This message is sent from CM to CE for CM to provide neighbour information to CE.

<b>Header</b>		
<i>Information element</i>	<i>Value</i>	<i>Description</i>
Source Identifier	CM ID	Source identifier
Destination Identifier	CE ID	Destination identifier
ACK Policy	ACK required / ACK not required	Request to send acknowledgement of reception
<b>Payload</b>		
<i>Information element</i>	<i>Value</i>	<i>Description</i>
Note: Information elements below are repeated for each neighbour network.		
Network ID	TBD	E.g., FCC ID of TVBD network or device
Network Type	TBD	E.g., 802.11af, 802.22
TBD	TBD	Operating channels if any

3 **6.2.2.3 CM\_GetNeighbors\_Request**

4 This message is sent from CM to CDIS for CM to request neighbour information for particular TVBD  
5 network or device.

<b>Header</b>		
<i>Information element</i>	<i>Value</i>	<i>Description</i>
Source Identifier	CM ID	Source identifier
Destination Identifier	CDIS ID	Destination identifier
ACK Policy	ACK required / ACK not required	Request to send acknowledgement of reception
<b>Payload</b>		
<i>Information element</i>	<i>Value</i>	<i>Description</i>
Network ID	TBD	E.g., FCC ID of TVBD network or device

6 **6.2.2.4 CM\_GetNeighbors\_Response**

7 This message is sent from CDIS to CM for CDIS to provide neighbour information regarding TVBD  
8 network or device mentioned in the request to CM.

<b>Header</b>		
<i>Information element</i>	<i>Value</i>	<i>Description</i>
Source Identifier	CDIS ID	Source identifier
Destination Identifier	CM ID	Destination identifier
ACK Policy	ACK required / ACK not	Request to send acknowledgement of

	required	reception
<b>Payload</b>		
<i>Information element</i>	<i>Value</i>	<i>Description</i>
Note: Information elements below are repeated for each neighbour CM.		
Neighbour CM ID	CM ID	Neighbour CM ID
Note: Information elements below are repeated for each neighbour network.		
Network ID	TBD	E.g., FCC ID of TVBD network or device
Network Type	TBD	E.g., 802.11af, 802.22
TBD	TBD	Operating channels if any

1 **6.2.3 Get available channel list procedure messages**

2 **6.2.3.1 CE\_GetAvailableChannels\_Request**

3 This message is sent form CE to CM for CE to request available channel list from CM. This message does  
4 not have payload.

<b>Header</b>		
<i>Information element</i>	<i>Value</i>	<i>Description</i>
Source Identifier	CE ID	Source identifier
Destination Identifier	CM ID	Destination identifier
ACK Policy	ACK required / ACK not required	Request to send acknowledgement of reception
<b>Payload</b>		
<i>Information element</i>	<i>Value</i>	<i>Description</i>
None	None	None

5 **6.2.3.2 CE\_GetAvailableChannels\_Response**

6 This message is sent from CM to CE for CM to provide available channel list to CE.

<b>Header</b>		
<i>Information element</i>	<i>Value</i>	<i>Description</i>
Source Identifier	CM ID	Source identifier
Destination Identifier	CE ID	Destination identifier
ACK Policy	ACK required / ACK not required	Request to send acknowledgement of reception
<b>Payload</b>		
<i>Information element</i>	<i>Value</i>	<i>Description</i>
Number of available channels	Integer	Number of available channels
TBD	TBD	Regulatory domain
Note: Information elements below are repeated for each available channel.		
Channel number	Integer	Channel number
Transmit power limit	Real	Transmit power limit

7 **6.2.3.3 CM\_GetAvailableChannels\_Request**

8 This message is sent form CM to CDIS/TVWSDB for CM to request available channel list for a particular  
9 TVBD network or device from CDIS/TVWSDB.

<b>Header</b>		
<i>Information element</i>	<i>Value</i>	<i>Description</i>

Source Identifier	CM ID	Source identifier
Destination Identifier	CDIS/TVWSDB ID	Destination identifier
ACK Policy	ACK required / ACK not required	Request to send acknowledgement of reception
<b>Payload</b>		
<i>Information element</i>	<i>Value</i>	<i>Description</i>
Network ID	TBD	E.g., FCC ID of TVBD network or device
TBD (optional)	TBD	Coverage related information. Used only if request is sent to TVWSDB.

1 **6.2.3.4 CM\_GetAvailableChannels\_Response**

2 This message is sent from CDIS/TVWSDB to CM for CDIS/TVWSDB to provide available channel list to  
3 CM.

<b>Header</b>		
<i>Information element</i>	<i>Value</i>	<i>Description</i>
Source Identifier	CDIS/TVWSDB ID	Source identifier
Destination Identifier	CM ID	Destination identifier
ACK Policy	ACK required / ACK not required	Request to send acknowledgement of reception
<b>Payload</b>		
<i>Information element</i>	<i>Value</i>	<i>Description</i>
Number of available channels	Integer	Number of available channels
TBD	TBD	Regulatory domain
Note: Information elements below are repeated for each available channel.		
Channel number	Integer	Channel number
Transmit power limit	Real	Transmit power limit

4 **6.2.4 Measurement procedure messages**

5 **6.2.4.1 Measurement\_Request**

6 This message is sent from CM to CE to request CE to perform measurements.

<b>Header</b>		
<i>Information element</i>	<i>Value</i>	<i>Description</i>
Source Identifier	CM ID	Source identifier
Destination Identifier	CE ID	Destination identifier
ACK Policy	ACK required / ACK not required	Request to send acknowledgement of reception
<b>Payload</b>		
<i>Information element</i>	<i>Value</i>	<i>Description</i>
Note: Information elements below are repeated for each requested measurement.		
Channel number	Integer	Channel number
Measurement schedule	TBD	Measurement schedule
Measurement ID	TBD	Measurement ID
Reporting mode	Immediate / Schedule / On-demand	Reporting mode. If reporting mode is On-demand, measurement results are not reported by CE, they are collected by CM.

1 **6.2.4.2 Measurement\_Report**

2 This message is sent from CE to CM to report measurement results.

<b>Header</b>		
<i>Information element</i>	<i>Value</i>	<i>Description</i>
Source Identifier	CE ID	Source identifier
Destination Identifier	CM ID	Destination identifier
ACK Policy	ACK required / ACK not required	Request to send acknowledgement of reception
<b>Payload</b>		
<i>Information element</i>	<i>Value</i>	<i>Description</i>
Measurement ID	TBD	Measurement ID
Measurement result	TBD	Measurement result

3 **6.2.4.3 Measurement\_Confirm**

4 This message is sent from CE to CM to confirm reception of measurement request. This message is also  
5 sent from CM to CE to confirm reception of measurement results. This message does not have any payload.

<b>Header</b>		
<i>Information element</i>	<i>Value</i>	<i>Description</i>
Source Identifier	CE/CM ID	Source identifier
Destination Identifier	CM/CE ID	Destination identifier
ACK Policy	ACK required / ACK not required	Request to send acknowledgement of reception
<b>Payload</b>		
<i>Information element</i>	<i>Value</i>	<i>Description</i>
None	None	None

6 **6.2.5 Information collection procedure messages**

7 **6.2.5.1 InfoAcquiring\_Request**

8 This message is sent from CM to CE to request CE to obtain information from CE. Also, this message is  
9 sent from CE to CM to obtain information from CM. Also, this message is sent from CM to another CM to  
10 obtain information from another CM. Also, this message is sent from CM to CDIS to obtain information  
11 from CDIS.

<b>Header</b>		
<i>Information element</i>	<i>Value</i>	<i>Description</i>
Source Identifier	CM/CE ID	Source identifier
Destination Identifier	CE/CM/CDIS ID	Destination identifier
ACK Policy	ACK required / ACK not required	Request to send acknowledgement of reception
<b>Payload</b>		
<i>Information element</i>	<i>Value</i>	<i>Description</i>
Source network ID	TBD	Source Network ID
Destination network ID	TBD	Destination Network ID
Requested information ID	TBD	Requested information ID



1 **6.2.5.2 InfoAcquiring\_Response**

2 This message is sent from CE to CM to provide requested information to CM. Also, this message is sent  
 3 from CM to CE to provide requested information to CE. Also, this message is sent from CM to another CM  
 4 to provide requested information to another CM. Also, this message is sent from CDIS to CM to provide  
 5 requested information to CM.

<b>Header</b>		
<i>Information element</i>	<i>Value</i>	<i>Description</i>
Source Identifier	CE/CM/CDIS ID	Source identifier
Destination Identifier	CM/CE ID	Destination identifier
ACK Policy	ACK required / ACK not required	Request to send acknowledgement of reception
<b>Payload</b>		
<i>Information element</i>	<i>Value</i>	<i>Description</i>
Source network ID	TBD	Source Network ID
Destination network ID	TBD	Destination Network ID
Requested information value	TBD	Requested information value

6 **6.2.6 Event procedure messages**

7 **6.2.6.1 Event\_Indication**

8 This message is sent from CE to CM to indicate an event. Also, this message is sent from CM to CE to  
 9 indicate an event. Also, this message is sent from CM to another CM to indicate an event. Also, this  
 10 message is sent from CM to CDIS to indicate an event. Also, this message is sent from CDIS to CM to  
 11 indicate an event.

<b>Header</b>		
<i>Information element</i>	<i>Value</i>	<i>Description</i>
Source Identifier	CE/CM/CDIS ID	Source identifier
Destination Identifier	CM/CE/CDIS ID	Destination identifier
ACK Policy	ACK required / ACK not required	Request to send acknowledgement of reception
<b>Payload</b>		
<i>Information element</i>	<i>Value</i>	<i>Description</i>
Event ID	TBD	Event ID
Event description	TBD	Event description

12 **6.2.6.2 Event\_Confirm**

13 This message is sent from CM to CE to confirm reception of the event indication. Also, this message is sent  
 14 from CE to CM to confirm reception of the event indication. Also, this message is sent from CM to another  
 15 CM to confirm reception of the event indication. Also, this message is sent from CDIS to CM to confirm  
 16 reception of the event indication. Also, this message is sent from CM to CDIS to confirm reception of the  
 17 event indication. This message does not have any payload.

<b>Header</b>		
<i>Information element</i>	<i>Value</i>	<i>Description</i>
Source Identifier	CM/CE/CDIS ID	Source identifier
Destination Identifier	CE/CM/CDIS ID	Destination identifier
ACK Policy	ACK required / ACK not required	Request to send acknowledgement of reception

<b>Payload</b>		
<i>Information element</i>	<i>Value</i>	<i>Description</i>
None	None	None

1 **6.2.7 Reconfiguration procedure messages**

2 **6.2.7.1 Reconfiguration\_Request**

3 This message is sent from CM to CE to request reconfiguration of TVBD network or device served by this  
4 CE.

<b>Header</b>		
<i>Information element</i>	<i>Value</i>	<i>Description</i>
Source Identifier	CM ID	Source identifier
Destination Identifier	CE ID	Destination identifier
ACK Policy	ACK required / ACK not required	Request to send acknowledgement of reception
<b>Payload</b>		
<i>Information element</i>	<i>Value</i>	<i>Description</i>
Reconfiguration description	TBD	Reconfiguration description

5 **6.2.7.2 Reconfiguration\_Confirm**

6 This message is sent from CE to CM to report the result of the requested reconfiguration of TVBD network  
7 or device served by this CE.

<b>Header</b>		
<i>Information element</i>	<i>Value</i>	<i>Description</i>
Source Identifier	CE ID	Source identifier
Destination Identifier	CM ID	Destination identifier
ACK Policy	ACK required / ACK not required	Request to send acknowledgement of reception
<b>Payload</b>		
<i>Information element</i>	<i>Value</i>	<i>Description</i>
Reconfiguration status	TBD	Reconfiguration status

8 **6.2.8 Session activity check procedure messages**

9 **6.2.8.1 SessionActive\_Request**

10 This message is sent from CM to CE to check that this CE is still active. Also, this message is sent from  
11 CDIS to CM to check that this CM is still active. This message does not have any payload.

<b>Header</b>		
<i>Information element</i>	<i>Value</i>	<i>Description</i>
Source Identifier	CM/CDIS ID	Source identifier
Destination Identifier	CE/CM ID	Destination identifier
ACK Policy	ACK required / ACK not required	Request to send acknowledgement of reception
<b>Payload</b>		
<i>Information element</i>	<i>Value</i>	<i>Description</i>
None	None	None

1 **6.2.8.2 SessionActive\_Confirm**

2 This message is sent from CE to CM to confirm that this CE is still active. Also, this message is sent from  
 3 CM to CDIS to confirm that this CM is still active. This message does not have any payload.

<b>Header</b>		
<i>Information element</i>	<i>Value</i>	<i>Description</i>
Source Identifier	CE/CM ID	Source identifier
Destination Identifier	CM/CDIS ID	Destination identifier
ACK Policy	ACK required / ACK not required	Request to send acknowledgement of reception
<b>Payload</b>		
<i>Information element</i>	<i>Value</i>	<i>Description</i>
None	None	None

4 **7. Coexistence mechanisms and algorithms**

5