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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TV White Space Coexistence 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
- **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
- 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
- be understood and used, so each referenced document is cited in text and its relationship to this document is
- explained). For dated references, only the edition cited applies. For undated references, the latest edition of
- 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

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

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- 9 Three logical entities are:
- 10 — Coexistence Manager (CM)
- 11 — Coexistence Enabler (CE)
- 12 — Coexistence Discovery and Information Server (CDIS).

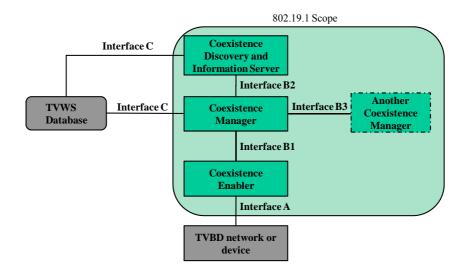
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- 14 Five logical interfaces are:
- 15 — Interface A
- 16 - Interface B1
- 17 — Interface B2
- 18 — Interface B3
- 19 — Interface C.

20

- 21 The 802.19.1 system interacts with two external elements:
- 22 TVWS database
- 23 24 — TVBD network or device.

25 Figure 1 shows 802.19.1 system architecture.



2 Figure 1 System Architecture

4.2 Logical entities

1

3

21

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
- 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
- 9 Facilitate sharing of information required for coexistence among TVBD networks or devices via the IEEE 802.19.1 system
- 11 Request TVBD network or device to perform measurements required for coexistence by itself or according to commands received from CM
- 13 Obtain measurement results required for coexistence from TVBD network or device and provide them to CM
- 15 Request TVBD network or device to perform reconfiguration required for coexistence according to commands received from CM
- 17 Receive information about observed or predicted events related to coexistence from TVBD network or device and provide it to CM
- Provide information about observed or predicted events related to coexistence (generated by IEEE 802.19.1 system) to TVBD network or device.

4.2.2 Coexistence Manager

- 22 Coexistence Manager has the following functional roles:
- 23 Coexistence decision making
- 24 Discovery of other CMs
- 25 Support exchange of information required for coexistence among CMs

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

Different interfaces in each group are distinguished by their usage, types of information exchanged, and 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:
- 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:
- Information required for coexistence (generated by IEEE 802.19.1 system or obtained by IEEE 802.19.1 system from external entities)
- 30 Measurement requests required for coexistence
- Reconfiguration requests required for coexistence
- Information about observed or predicted events related to coexistence (generated by IEEE 802.19.1 system).

4.3.2 Interface B1

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

1 — From CE to CM:

25

26

2	— Information required for coexistence
3 4	 — From CM to CE: — 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 8 9 10 11 12	 From CM to CDIS: Information required for discovery Information required for coexistence From CDIS to CM: Information required for discovery 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 18	Interface C between CM and TVWS database or between CDIS and TVWS database is used to transmit the following:
19 20	— From TVWS database: — 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.
	COEX_MEDIA_SAP
	Coexistence Enabler
24	COEX_TR_SAP

Reference model of Coexistence Enabler

Figure 2

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
- 4 Server.

Coexistence Manager or Coexistence Discovery and Information Server

COEX_TR_SAP

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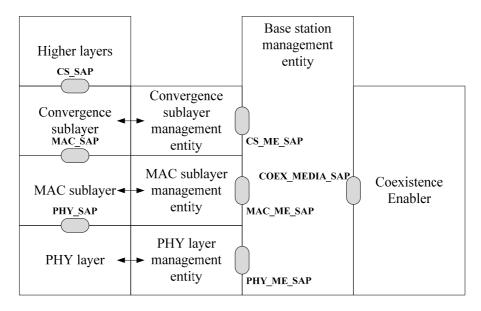
6 Reference model of Coexistence Manager and Coexistence Discovery and Figure 3 Information Server

- 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 12 model of CE describing example implementation of interface A inside a base station is shown in Figure 4.



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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 16 management planes for physical layer, MAC sublayer, and convergence sublayer. The middle part of 17 Figure 4 shows base station management entity. The right part of Figure 4 shows CE.
- 18 Typically, radio interface is implemented in such a way that it provides management interface for base 19 station management entity. In Figure 4, such interface is represented by three service access points
- 20 PHY ME SAP, MAC ME SAP, and CS ME SAP, corresponding to physical layer, MAC sublayer, and

convergence sublayer. This service access points can be used to obtain information from radio interface and to request reconfiguration of radio interface. Correspondingly, CE can use these service access points to implement interface A. Interface A is defined by service access point COEX_MEDIA_SAP. Communication between radio interface management service access points PHY_ME_SAP, MAC_ME_SAP, and CS_ME_SAP and CE service access point COEX_MEDIA_SAP is done via base station management entity.

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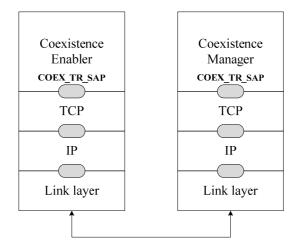
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COEX_TR_SAP provides means for Coexistence Enabler, Coexistence Manager, and Coexistence Discovery and Information Server to communicate with each other and with external entities by using transport services provided by underlying layers. The underlying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



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Figure 5 Example of using COEX_TR_SAP for interface B1

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

5.2 Service access points

5.2.1 Coexistence Media SAP

5.2.1.1 General description

- Coexistence Media SAP (COEX_MEDIA_SAP) defines the interface A between CE and TVBD 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

— Used by TVBD network/device to share information required for coexistence with other TVBD

- 3 4
- 5
- 6
- 7 8 9
- 10 11
- 12 13 14
- 15 16

- networks/devices via the IEEE 802.19.1 system — Measurement service:
 - Used by CE to request TVBD network/device to perform measurements required for coexistence
 - Used by CE to to obtain measurement results required for coexistence from TVBD network/device
 - Reconfiguration service:
 - Used by CE to request TVBD netrwork/device to perform reconfiguration required for coexistence
 - Event service:
 - Used by TVBD network/device to receive information about observed or predicted events related to coexistence from CE
 - Used by CE to receive information about observed or predicted events related to coexistence from TVBD network/device.

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

Table 1 – Coexistencre 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	Туре	Descr	iption				
CoexInfoParamIds	COEX_I_PARAM_IDs	This	parameter	contains	list	of	information
		param	eter IDs req	uested by (CE.		

13

- 14 When generated
- Generated by CE to request information required for coexistence from TVBD network/device.
- 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
- When CE received network/device.

23 **5.2.1.2.1.2 COEX_INFO_OBTAINING.confirm**

- 24 Function
- Used by TVBD network/device to provide information required for coexistence to CE.
- Used by CE to provide information required for coexistence to TVBD network/device.

1		
	Caree	4
1	Sema	uuucs

2 COEX_INFO_OBTAINING.confirm(

3 CoexInfoParams

4)

5

Name	Туре	Descr	iption				
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

- When CE receives this primitive, it examines the received information required for coexistence.
- 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
- networks/devices via the IEEE 802.19.1 system.

20

21 Semantics

- 22 COEX_INFO_SHARING.request(
- 23 InfoDestination,
- 24 CoexInfoParamIds
- 25)

Name	Туре	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

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

5

6 Effect on receipt

- 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

networks/devices via the IEEE 802.19.1 system.

13

14 Semantics

- 15 COEX_INFO_SHARING.confirm(
- 16 CoexInfoParamIds
- 17)

18

Name	Туре	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.
		Share with still 1 , 22 het of the detices.

19

20

When generated

Generated by CE in response to COEX INFO SHARING.request from TVBD network/device.

22

23 Effect on receipt

When TVBD network/device receives this primitive, it examines the received information about the

capability of sharing information to other TVBD networks/devices via the IEEE 802.19.1 system.

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

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- 7 Semantics
- 8 COEX_INFO_PROVISION.request(
- 9 InfoDestination,
- 10 CoexInfoParams
- 11)

12

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

17

- 18 Effect on receipt
- 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
- Used by CE to inform TVBD network/device about the status of the request to provide information to the
- IEEE 802.19.1 system for sharing with other TVBD networks/devices.

- 26 Semantics
- 27 COEX_INFO_PROVISION.confirm(

1 InfoProvisionStatus

2

3

Name	Туре	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

2	2

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**

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

10

11 **Semantics**

- 12 COEX RCF.confirm(
- 13 CoexReconResults
- 14)

15

Name	Type	Desci	ription					
CoexReconResutls	COEX_R_RESULTs	This	parameter	describes	the	result	of	the
		recon	figuration re	quested by	the Cl	Ε.		

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 22 When CE receives this primitive, it examines the received information about the status of the request to
- 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	Туре	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

- When TVBD network/device receives this primitive, it performs requested measurement. Then, TVBD
- 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	Туре	Descr	ription					
CoexMeasuResults	COEX_M_RESULTs	This	parameter	contains	list	of	results	of
		measu	arement perfe	ormed by T	VBD	netw	ork/devi	ce

23

24

When generated

Generated by TVBD network/device in response to the COEX_MEAS.request from CE.

1 Effect on receipt

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

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(
- CoexEventParams
- 14)

15

Name	Туре	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
- predicted by IEEE 802.19.1 system.

- 23 Effect on receipt
- When CE receives this primitive, it examines the received information about events realted to coexistence
- observed or predicted by TVBD network/device.
- When TVBD network/device receives this primitive, it examines the received information about events
- realted to coexistence observed or predicted by IEEE 802.19.1 system.

5.2.2 Coexistence Transport SAP

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:

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14 15

- Used by CE, CM, CDIS or external entity to send coexistence protocol data unit to each other and to external entities and to receive acknoledgement of such operation
- Used by CE, CM, and CDIS or external entity to receive coexistence protocol data unit from each other and from external entities.

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

Table 2 – Coexistencre 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 deliever 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.
- 23 Semantics

- 24 CP_PACKET_SEND.request (
- TransportPref,
- 26 SourceID,
- 27 DestinationID,
- 28 CoexProtocolPDU

1)

2

Name	Туре	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

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

7 Effect on receipt

- The specific transport servce provider receiving this primitive attempts to transport the coexistence protocol
- 8 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)

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

- When CE, CM, CDIS or external entity receives this primitive, it learns about the staus 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(
- TransportPref,
- 17 SourceID,
- 18 DestinationID,
- 19 CoexProtocolPDU
- 20)

21

Name	Туре	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

When generated

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

26 Effect on receipt

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

5.3 Data types

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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
     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
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37
        CapabilityInformation,
        BSSBasicRateSet,
        OperationalRateSet,
        Country,
        IBSSDFSRecoveryInterval,
        Load,
        TPCTransmitPower,
        TPCLinkMargin,
        NeighbourBSSSet,
        ListOfAvailableChannels,
        NetworkChannels,
        AntennaInfo,
        TVBDInfo,
        SysEntityID,
        TVBDID,
        ListOfNeighbours,
     }
     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
                                              CF_PARAM_SET,
        CFParameterSet
```

```
1
       IBSSATIMWindow
                                          TU,
 2
                                          BSS_CAPA_INFO,
       CapabilityInformation
                                         SET OF INTEGER,
       BSSBasicRateSet
 4
5
6
7
                                         SET OF INTEGER,
       OperationalRateSet
       Country
                                         STRING,
       IBSSDFSRecoveryInterval
                                         INTEGER,
      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
22
23
24
25
26
27
28
29
30
31
32
33
34
    COEX_I_PARAM ::= SEQUENCE{
       InfoParamId I_PARAM_ID,
       InfoStatus
                             I_STATUS,
       InfoParamValue
                            I_PARAM_VALUE
     COEX_I_PARAMs ::= SEQUENCE OF COEX_I_PARAM
     I_STATUS ::= ENUMERATED{
       SUCCESS,
      NOT_AVAILABLE_NOW,
      NOTSUPPORTED,
       BUSY,
35
     }
36
37
     SYS_ENTITY_ID ::= INTEGER
38
39
     INFO_DEST ::= SEQUENCE OF SYS_ENTITY_ID
40
```

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

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41

42

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.
SSID	OCTET_STRING	132 octets	The SSID of the found BSS.	confirm
BSSType	ENUMERATED	INFRASTRUC TURE, INDEPENDENT	The type of the found BSS.	BSS Description Set
BeaconPeriod	INTEGER	N/A	The Beacon period of the	

			found BSS (in TU).
DTIMPeriod	INTEGER	As defined in	The DTIM period of the
Dinin chou	INTEGER	frame format	BSS (in beacon periods).
Timestamp	INTEGER	N/A	The timestamp of the
Timesump	INTEGER	14/21	received frame (probe
			response/beacon) from the
			found BSS.
LocalTime	INTEGER	N/A	The value of the STA fs
Locallinic	INTEGER	11/71	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.
DIIVD	DIIV DADAM	A = J = C = = J :==	
PHYParameter	PHY_PARAM_	As defined in	The parameter sets
Set	SET	frame format or	relevant to the PHY from
		according to the	the received Beacon or
		relevant PHY	Probe Response frame. If
		clause	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
		<u> </u>	PHY clause.
CFParameter	CF_PARAM_	As defined in	The parameter set for the
Set	SET	frame format	CF periods, if found BSS
			supports CF mode.
IBSSATIM	TU	As defined in	The parameter set for the
Window		frame format	IBSS, if found BSS is an
			IBSS.
Capability	BSS CAPA	As defined in	The advertised capabilities
Information		0 0	
BSSBasicRate	INFO	frame format	of the BSS.
Set	INFO SET OF	1127 inclusive	of the BSS. The set of data rates that
200	INFO	1127 inclusive (for each integer	of the BSS. The set of data rates that must be sup-ported by all
	INFO SET OF	1127 inclusive	of the BSS. The set of data rates that must be sup-ported by all STAs that desire to join
	INFO SET OF	1127 inclusive (for each integer	of the BSS. The set of data rates that must be sup-ported by all STAs that desire to join this BSS. The STAs must
	INFO SET OF	1127 inclusive (for each integer	of the BSS. The set of data rates that must be sup-ported by all STAs that desire to join this BSS. The STAs must be able to receive and
	INFO SET OF	1127 inclusive (for each integer	of the BSS. The set of data rates that must be sup-ported by all STAs that desire to join this BSS. The STAs must be able to receive and transmit at each of the
	INFO SET OF INTEGER	1127 inclusive (for each integer in the set)	of the BSS. The set of data rates that must be sup-ported 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	INFO SET OF INTEGER SET OF	1127 inclusive (for each integer in the set) 1127 inclusive	of the BSS. The set of data rates that must be sup-ported 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. The set of data rates that
	INFO SET OF INTEGER	1127 inclusive (for each integer in the set) 1127 inclusive (for each integer	of the BSS. The set of data rates that must be sup-ported 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. The set of data rates that the STA desires to use for
Operational	INFO SET OF INTEGER SET OF	1127 inclusive (for each integer in the set) 1127 inclusive	of the BSS. The set of data rates that must be sup-ported 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. The set of data rates that the STA desires to use for communication within the
Operational	INFO SET OF INTEGER SET OF	1127 inclusive (for each integer in the set) 1127 inclusive (for each integer	of the BSS. The set of data rates that must be sup-ported 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. The set of data rates that the STA desires to use for communication within the BSS. The STA must be
Operational	INFO SET OF INTEGER SET OF	1127 inclusive (for each integer in the set) 1127 inclusive (for each integer	of the BSS. The set of data rates that must be sup-ported 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. 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
Operational	INFO SET OF INTEGER SET OF	1127 inclusive (for each integer in the set) 1127 inclusive (for each integer	of the BSS. The set of data rates that must be sup-ported 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. 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
Operational	INFO SET OF INTEGER SET OF	1127 inclusive (for each integer in the set) 1127 inclusive (for each integer	of the BSS. The set of data rates that must be sup-ported 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. 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
Operational	INFO SET OF INTEGER SET OF	1127 inclusive (for each integer in the set) 1127 inclusive (for each integer	of the BSS. The set of data rates that must be sup-ported 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. 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
Operational	INFO SET OF INTEGER SET OF	1127 inclusive (for each integer in the set) 1127 inclusive (for each integer	of the BSS. The set of data rates that must be sup-ported 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. 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
Operational	INFO SET OF INTEGER SET OF	1127 inclusive (for each integer in the set) 1127 inclusive (for each integer in the set)	of the BSS. The set of data rates that must be sup-ported 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. 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
Operational	INFO SET OF INTEGER SET OF	1127 inclusive (for each integer in the set) 1127 inclusive (for each integer	of the BSS. The set of data rates that must be sup-ported 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. 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

	1	1	1	1
			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,	
			1	
			as specified in 11.8, or	
			when dot11MultiDomain	
			CapabilityEnabled is true.	
IBSSDFS	INTEGER	1255	Only present if BSSType	
Recovery			= INDEPENDENT. The	
Interval			time interval that is used	
			for DFS recovery. Present	
			only when DFS	
T 1	Dag Loub	A 1 6 1:	functionality is required.	
Load	BSS_LOAD	As defined in	The values from the BSS	
		frame format	Load information element	
			if such an element was	
			present in the probe	
			response or Beacon frame,	
			else null.	
TPCTransmit	INTEGER		The Transmit Power field	802.11-2007
Power	HAILOPK		shall be set to the transmit	TPC report
Power				TPC report
			power used to transmit the	, a, a
			frame containing the TPC	MLME-
			Report element. The field	TPCADAPT
			is coded as a signed	.confirm
			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).	
TPCLink	INTEGER		The Link Margin field	
Margin			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	
1			Probe Response frame.	

			The measurement method	
			of Link Margin is beyond	
		~ .~	the scope of this standard.	
Neighbour	NEIBR_BSS_	Specified in the	Report the neighbor of an	
BSSSet	SET	regulatory domain	BSS	11k
				Neighbour
			Repot the channel of the	report
			neighbor BSS	
ListOfAvailable	LIST TV			802.11af
Channels	CHANNELS			802.22
Network	NETWORK		The parameter reports the	802.11af
Channels	CHANNELS		network channels that TV	
			band devices and	IEEE 802.22
			networks are operating on.	M-WRAN-
			F. W. S.	SERVICE-
				REPORT
AntennaInfo	ANTENNA		Specifying the antenna	IEEE 1900.6
1 1110011111111111111111111111111111111	INFO		information of TV band	1222 1700.0
	11.11.0		devices.	
TVBDInfo	TVBD INFO		The value identifies the	IEEE 802.22
1 V DDIIIIO	I VDD_II II O		type of device at the	ILLE 002.22
			geolocation registering	IEEE 802.11
			geolocation registering	device types
				are denoted
				as WLAN
				STA and
N. 11. DCC	NEIDD DCC	C	Depart the second land Com-	
Set	SEI	regulatory domain		
G F C ID	D.ITE.CED			
SysEntityID	INTEGER			
TVBDID	STRING			TVBD
Channels	NELS			
				system to
				TVBDs
	LIST		This parameters gives the	
ListOf	· · · · · · · · · · · · · · · · · · ·			
ListOf Neighbours	NEIGHBOURS		TVBD ID, TVBDInfo,	
			TVBD ID, TVBDInfo, occupied channels,	
NeighbourBSS Set SysEntityID TVBDID ListOfAvailable Channels	NEIBR_BSS_ SET INTEGER STRING LIST_TV_CHAN NELS	Specified in the regulatory domain		

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
6
7
8
    COEX_R_OBJ_ID ::= ENUMERATED{
```

ChannelSwitch,

ChangeTransmitPower,

Scheduling

```
1
    }
 2
    R_PROFILE_PARAM_ID ::= ENUMERATED{
 4
5
6
7
      NewRegulatoryClass,
       ChannelNumber,
      ChannelSwitchMode,
      ChannelSwitchCount,
      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
21
22
23
24
25
26
27
28
29
30
31
32
33
34
                                          INTEGER,
       ChannelSwitchCount
       DSELocalPowerConstraint
                                          INTEGER,
       NewNetworkChannels
                                          NET CHANNELs,
       DisallowedChannels
                                          SET OF INTEGER,
                                          SET OF INTEGER,
       OperatingChannels
       Schedule
                                          SCHEDULE,
     R_PROFILE_PARAM ::= SEQUENCE{
       ReconProfileParamID
                                         R_PROFILE_PARAM_ID,
       ReconProfileParamValue
                                         R_PROFILE_PARAM_VALUE
     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
54
55
       ReconStatus
                              R_STATUS,
                             COEX_R_PARAMs
                                                     OPTIONAL
       CoexReconParams
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

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
NewChannel Number	INTEGER	As specified in the regulatory domain	The number of the new channel to be switched to.	Switch
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 chanels 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	INFRASTRUC	Determines whether	802.11-2007
		TURE,	infrastructure BSS, IBSS,	Scan.request
		INDEPENDENT,	or both, are included in	
		ANY_BSS	the scan.	
BSSID	STRING	Any valid	Identifies a specific or	
		individual	wildcard BSSID.	
		orbroadcast MAC		
		address		
SSID	STRING	032 octets	Specifies the desired SSID	
			or the wildcard SSID.	
ScanType	ENUMERATED	ACTIVE,	Indicates either active or	
		PASSIVE	passive scanning.	
ProbeDelay	INTEGER	N/A	Delay (in microseconds)	
			to be used prior to	
			transmitting a Probe frame	
			during active scanning.	
ChannelList	SEQUENCE OF	Each channel will	Specifies a list of channels	
	INTEGER	be selected from	that are examined when	
		the valid channel	scanning for a BSS.	

Range for the appropriate PHY and carrier set.	re
MinChannel Time INTEGER ProbeDelay The minimum time (in TU) to spend on each channel when scanning. MaxChannel Time INTEGER MinChannelTime Time MinChannelTime Time ChMeasuType Ch_MEASU_ TYPE Ch_MEASU_ TYPE Channel INTEGER Specified in regulatory domain StartTime INTEGER INTEGER Specified in regulatory domain StartTime INTEGER 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. Duratioin 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 STRING Any valid Integer Inte minimum time (in TU) to spend on each channels when scanning. The maximum time (in TU) to spend on each channels when scanning. The maximum time (in TU) to spend on each channel when scanning. Integer have a specified in Tus. The maximum time (in TU) to spend on each channel when scanning. Integer have a specified with the requested measurement as specified by the MeasurementType parameter, expressed in TUs. LinkMeasu STRING Any valid The address of the peer 802.11 LinkMeasu probable and channel when scanning. The maximum time (in TU) to spend on each channel when scanning. The maximum time (in TU) to spend on each channel when scanning. The maximum time (in TU) to spend on each channel when scanning. Integer have a specified with the measurement of the requested measurement of the requested measurement as specified by the MeasurementType parameter, expressed in TUs.	re
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 1: Clear channel assessment (CCA) request 2: Receive power indication (RPI) histogram 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. Duratioin 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 STRING Any valid Measurement Type parameter, expressed in TUs. LinkMeasu STRING Any valid The address of the peer parameter title, bush the Measurement to the time time time time time to the cannon ascending.	re
Time TU) to spend on each channel when scanning. MaxChannel Time Time Tu) to spend on each channel when scanning. The maximum time (in TU) to spend on each channel when scanning. ChMeasuType Ch_MEASU_ TYPE Tuype T	re
MaxChannel Time MinChannelTime The maximum time (in TU) to spend on eachchannel when scanning. ChMeasuType Ch_MEASU_ TYPE O,1,2 0: Basic request; 1: Clear channel assessment (CCA) request 2: Receive power indication (RPI) histogram request Channel number for which the measurement request applies StartTime INTEGER Specified in regulatory domain The parameter specifies the time at which the requested measurement, as specified by the Measurement (Type parameter, shall start. A value of 0 shall indicate it shall start immediately. Duratioin INTEGER The Measurement Duration field shall be set to the duration of the requested measurement, as specified by the Measurement (Type parameter, expressed in TUs. LinkMeasu STRING Any valid individual The address of the peer 802.11 Link L	re
MaxChannel Time INTEGER MinChannelTime acachchannel wing (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 1: Clear channel assessment (CCA) request 2: Receive power indication (RPI) histogram request Channel 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. Duratioin 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 STRING Any valid individual The address of the peer MAC entity to which the 802.11	re
Time TU) to spend on eachchannel when scanning. Ch_MEASU_ TYPE	re
ChMeasuType	re
ChMeasuType	re
ChMeasuType TYPE Ch_MEASU_ TYPE Ch_MEASU_ TYPE Ch_MEASU_ TYPE O,1,2 O: Basic request; 1: Clear channel assessment (CCA) request 2: Receive power indication (RPI) histogram request Channel Number Channel INTEGER Specified in regulatory domain The parameter specifies the time at which the requested measurement, as specified by the Measurement Type parameter, shall start. A value of 0 shall indicate it shall start immediately. Duratioin INTEGER The parameter specifies the time at which the requested measurement, as specified by the Measurement Duration field shall be set to the duration of the requested measurement, as specified by the Measurement Type parameter, expressed in TUS. LinkMeasu PeerAdd STRING Any valid individual The address of the peer MAC entity to which the	re
TYPE 1: Clear channel assessment (CCA) request 2: Receive power indication (RPI) histogram request Channel INTEGER Specified in regulatory domain the measurement request applies StartTime INTEGER INTEGER INTEGER 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. Duratioin 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 The address of the peer indication (CCA) request ment requested in ment re	re
Channel INTEGER Specified in regulatory domain StartTime INTEGER The parameter specifies the time at which the requested measurement, as specified by the Measurement Duration field shall be set to the duration of the requested measurement, as specified by the Measurement Duration field shall be set to the duration of the requested measurement, as specified by the Measurement Duration field shall be set to the duration of the requested measurement, as specified by the Measurement Duration field shall be set to the duration of the requested measurement, as specified by the Measurement Duration field shall be set to the duration of the requested measurement, as specified by the Measurement Type parameter, expressed in TUs. LinkMeasu STRING Any valid The address of the peer MAC entity to which the Link	
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Channel INTEGER Specified in regulatory domain request 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. Duratioin INTEGER The Measurement Type parameter for the duration of the requested measurement, as specified by the Measurement Type parameter, expressed in TUs. LinkMeasu STRING Any valid individual The address of the peer MAC entity to which the Link	
Channel INTEGER Specified in regulatory domain the measurement request applies StartTime INTEGER The parameter specifies the time at which the requested measurement, as specified by the Measurement shall start. A value of 0 shall indicate it shall start immediately. Duratioin INTEGER The Measurement Duration field shall be set to the duration of the requested measurement, as specified by the Measurement Duration field shall be set to the duration of the requested measurement, as specified by the MeasurementType parameter, expressed in TUs. LinkMeasu STRING Any valid individual The address of the peer MAC entity to which the Link	
Channel Number INTEGER Specified in regulatory domain StartTime INTEGER INTEGER INTEGER INTEGER INTEGER INTEGER 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. Duratioin INTEGER INTEGER 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 The address of the peer MAC entity to which the Maccentity to which the	
Number regulatory domain 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. Duratioin 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 STRING Any valid The address of the peer PeerAdd PeerAdd The MAC entity to which the Link	
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. Duratioin 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 STRING Any valid individual The address of the peer MAC entity to which the Link	
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. Duratioin 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 The address of the peer individual MAC entity to which the	
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. Duratioin 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 Any valid individual The address of the peer 802.11 MAC entity to which the	
requested measurement, as specified by the MeasurementType parameter, shall start. A value of 0 shall indicate it shall start immediately. Duratioin 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 The address of the peer MAC entity to which the Link	
specified by the MeasurementType parameter, shall start. A value of 0 shall indicate it shall start immediately. Duratioin 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 The address of the peer 802.11 MAC entity to which the	
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parameter, shall start. A value of 0 shall indicate it shall start immediately. Duratioin 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 The address of the peer MAC entity to which the Link	
Duratioin 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 NAC entity to which the value of 0 shall indicate it shall start immediately. The Measurement Duration field shall be set to the duration of the requested measurement, as specified by the MeasurementType parameter, expressed in TUs.	
Duratioin INTEGER 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 entity to which the shall start immediately. The Measurement Duration field shall be set to the duration of the requested measurement, as specified by the MeasurementType parameter, expressed in TUs.	
Duratioin 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 The address of the peer MAC entity to which the Solution MAC entity to which the	
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 The address of the peer MAC entity to which the Link	
to the duration of the requested measurement, as specified by the MeasurementType parameter, expressed in TUs. LinkMeasu PeerAdd STRING Any valid individual The address of the peer MAC entity to which the Link	
requested measurement, as specified by the MeasurementType parameter, expressed in TUs. LinkMeasu PeerAdd STRING Any valid individual The address of the peer individual MAC entity to which the Link	
specified by the MeasurementType parameter, expressed in TUs. LinkMeasu STRING Any valid The address of the peer individual MAC entity to which the Link	
MeasurementType parameter, expressed in TUs. LinkMeasu STRING Any valid The address of the peer individual MAC entity to which the Link	
LinkMeasu STRING Any valid The address of the peer londividual MAC entity to which the Link	
LinkMeasu STRING Any valid The address of the peer 802.11 PeerAdd individual MAC entity to which the Link	
LinkMeasu STRING Any valid The address of the peer 802.11 PeerAdd individual MAC entity to which the Link	
PeerAdd individual MAC entity to which the Link	<u></u>
	K
With address Ellik Wedsale Request measure	re
shall be sent. ment	C
LinkMeasu INTEGER The transmit power to be	
TxPower used when transmitting	
the Link Measurement	
Request frame and	
included in the	
frame body	
LinkMeasu INTEGER The maximum transmit	
MaxiTxPower power to be used by the	
transmitting STA on its	
operating channel.	
Sensing SENSING Specification consists of: 802.22	
Window WINDOW Sensing Periods SM-SS	
Sensing Period Duration	
SensingPeriodInterval	
SignalType SIGNAL TYPE The interger number	
specifies the following	

	T	1	1	
			types of signals to be	
			sensed by the spectrum	
			sensor.	
			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	
SensingMode	SENSING		Mode 0: For each signal	
Sensingivious	MODE		type the SSF generates a	
	MODE		binary decision as to	
			whether the signal is	
			present in the television	
			channel	
			Mode 1: Same as sensing	
			mode 0 with the addition	
			of a confidence metric for	
			binary decision	
			Mode 2: For each signal	
			type the spectrum sensor	
			generates an estimate of	
			the field strength of that	
			Signal	
			Mode 3: Same as sensing	
			mode 2 with the standard	
			deviation of the field	
			strength estimate from	
			sensing mode 2.	
			Mode4: reserved	
Detection	DEAL	160. 70		IEEE 1000 C
Detection	REAL	-160~70	The parameter specifies	IEEE 1900.6
Threshold	DEDE MESS		the noise power in dBm.	
Performance	PERF_METRIC		Parameter that indicates	
Metric			the quality of sensing.	
Geolocation	STRING		Reques to obtain the	IEEE 802.22
			geolocation information of	GL-SAP,
			the TV band devices.	802.11af,
				1900.6

5.3.1.3 Measurement service data types

1

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,
        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
22
       ChannelNumber,
       StartTime,
23
       Duration,
24
25
26
27
28
29
       LinkMeasuPeerAdd,
       LinkMeasuTxPower,
       LinkMesuMaxiTxPower,
       SensingWindow,
       SignalType,
       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
                                           SCAN_TYPE,
       ScanType
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,
                                            PERF_METRIC,
       PerformanceMetric
4
5
6
7
8
9
       Geolocation
                                            STRING,
     }
    M_PROFILE_PARAM ::= SEQUENCE{
       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
23
24
25
26
27
28
29
31
32
33
34
     M_STATUS ::= ENUMERATED{
       SUCCESS,
       NOTSUPPORTED,
       BUSY,
     M_RESULT_PARAM_ID ::= ENUMERATED{
       BSSID,
       SSID,
       BSSType,
      BeaconPeriod,
      DIMPeriod,
35
36
37
      TimeStamp,
      LocalTime,
      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
52
       TransmitPower,
       LinkMagin,
53
54
       RCPI,
       RSNI,
55
       ReceiveAntennaID,
56
       TransmitAntennaID,
       SensingResult,
```

```
Geolocation,
 2345678
    M_RESULT_PARAM_VALUE ::= CHOICE{
                                          STRING,
       SSID
                                          STRING,
      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,
                                         SET OF INTEGER,
17
       BSSBasicRateSet
18
                                         SET OF INTEGER,
       OperationalRateSet
19
       Country
                                          STRING,
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
       IBSSDFSRecoveryInterval
                                          INTEGER,
       Load
                                          BSS_LOAD,
                                          CH MEASU TYPE,
       ChMeasuType
       ChannelNumber
                                          INTEGER,
       StartTime
                                          INTEGER,
       Duration
                                          INTEGER,
       ChMeasuReport
                                          CH_MEASU_REPORT,
       TransmitPower
                                          INTEGER,
      LinkMargin
                                          INTEGER,
      RCPI
                                          REAL,
      RSNI
                                          REAL,
      ReceiveAntennaID
                                          INTEGER,
      TransmitAntennaID
                                          INTEGER,
      SensingResult
                                          SENSING_RESULT,
      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.

1

Name	Type	Valid range	Description	Note
			The BSSID of the found	802.11-2007
BSSID	STRING	N/A	BSS.	Scan.
			The SSID of the found	confirm
SSID	STRING	132 octets	BSS.	
		INFRASTRUC		BSS
		TURE,	The type of the found	Description
BSSType	BSS_TYPE	INDEPENDENT	BSS.	Set
			The Beacon period of the	
BeaconPeriod	INTEGER	N/A	found BSS (in TU).	
		As defined in	The DTIM period of the	
DTIM Period	INTEGER	frame format	BSS (in beacon periods).	
			The timestamp of the	
			received frame (probe	
			response/beacon) from the	
Timestamp	INTEGER	N/A	found BSS.	
			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	
LocalTime	INTEGER	N/A	the found BSS.	
			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	
		As defined in	number on which the	
		frame format or	frame was received. Valid	
		according to the	channel numbers are	
PHYParameter	PHY_PARAM_	relevant PHY	defined in the relevant	
Set	SET	clause.	PHY clause.	
			The parameter set for the	
CFParameter	CF_PARAM_	As defined in	CF periods, if found BSS	
Set	SET	frame format	supports CF mode.	
			The parameter set for the	
IBSSATIM		As defined in	IBSS, if found BSS is an	
Window	TU	frame format	IBSS.	
Capability		As defined in	The advertised capabilities	
Information	BSS_APA_INFO	frame format	of the BSS.]
			The set of data rates that	
			must be sup-ported by all	
			STAs that desire to join	
			this BSS. The STAs must	
		1 127 inclusive	he oble to receive and	I

be able to receive and

transmit at each of the

data rates listed in the set.

The set of data rates that

1..127 inclusive

(for each integer

1..127 inclusive

in the set)

BSSBasicRate

Operational

SET OF

SET OF

INTEGER

_ ~		I (a		
RateSet	INTEGER	(for each integer	the STA desires to use for	
		in the set)	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.	
			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	
		As defined in the	dot11MultiDomainCapabi	
Country	STRING	Country element	lityEnabled is true.	
			Only present if BSSType	
			= INDEPENDENT. The	
			time interval that is used	
IBSSDFS			for DFS recovery. Present	
Recovery			only when DFS	
Interval	INTEGER	1255	functionality is required.	
Interval	IVIEGER	1233	The values from the BSS	
			Load information element	
			if such an element was	
			present in the probe	
		As defined in		
T 1	DOG LOAD		response or Beacon frame,	
Load	BSS_LOAD	frame format	else null.	11 2007
Measurement	CH_MEASU_	0,1,2	0: Basic request;	.11-2007
Type	TYPE		1: Clear channel	measure
			assessment (CCA) request	ment report
			2: Receive power	
			indication (RPI) histogram	
			request	
Channel	INTEGER	Specified in	channel number for which	
Number		regulatory domain	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.	
Duratioir	INTEGED		The Measurement	
Duratioin	INTEGER			
			Duration field shall be set	
			to the duration of the	
			requested measurement, as	

October 2010

ChMeasu CH_MEASU_ Report REPORT Result of selected measurement. See the following tables for the parameter description of BasicReport, CCAReport and RPIhistogramReport The contents of the Transmit Power field of the received Link Measurement Report frame. Present only(#1472) if ResultCode element SUCCESS. The contents of the Link Margin field of the received Link Measurement Report frame. Present only(#1472) if ResultCode SUCCESS. The contents of the Link Margin field of the received Link Measurement Report frame. Present only(#1472) if Result-Code = SUCCESS. The RCPI level of the corresponding Link Measurement Request frame received at the reporting STA. Present only(#1472) if ResultCode SUCCESS. SUCCESS. The RCPI level of the corresponding Link Measurement Request frame received at the reporting STA. Present only(#1472) if ResultCode SUCCESS.
Report REPORT
following tables for the parameter description of BasicReport, CCAReport and RPIhistogramReport The contents of the Transmit Power field of the received Link Measurement Report frame. Present only(#1472) if ResultCode element As defined in the TPC Report only(#1472) if Result-Code element As defined in the TPC Report only(#1472) if Result-Code element As defined in TPC Report element As defined in TPC Report only(#1472) if Result-Code element As defined in The RCPI level of the corresponding Link Measurement Request frame received at the reporting STA. Present only(#1472) if ResultCode element reporting STA. Present only(#1472) if ResultCode element ereporting S
parameter description of BasicReport, CCAReport and RPIhistogramReport The contents of the Transmit Power field of the received Link Measurement Report frame. Present only(#1472) if ResultCode element As defined in the TPC Report element INTEGER As defined in the TPC Report element As defined in the TPC Report element As defined in the TPC Report element As defined in the TPC Report only(#1472) if Result-Code es UCCESS. The contents of the Link Measurement Report frame. Present only(#1472) if Result-Code es UCCESS. As defined in TPC Report element As defined in TPC Report element As defined in TPC Report only(#1472) if Result-Code es UCCESS. As defined in The RCPI level of the corresponding Link Measurement Request frame received at the reporting STA. Present only(#1472) if ResultCode es UCCESS.
BasicReport, CCAReport and RPIhistogramReport The contents of the Transmit Power field of the received Link Measurement Report only(#1472) if ResultCode element TransmitPower INTEGER TransmitPower INTEGER As defined in the TPC Report element As defined in the TPC Report only(#1472) if ResultCode element As defined in the TPC Report only(#1472) if Result-code element LinkMargin INTEGER As defined in the TPC Report only(#1472) if Result-code element LinkMargin INTEGER As defined in The RCPI level of the corresponding Link Measurement Request frame received at the reporting STA. Present only(#1472) if ResultCode es SUCCESS. The RCPI level of the corresponding Link Measurement Request frame received at the reporting STA. Present only(#1472) if ResultCode es SUCCESS.
and RPIhistogramReport The contents of the Transmit Power field of the received Link Measurement Report frame. Present only(#1472) if ResultCode = SUCCESS. The contents of the TransmitPower frame Present only(#1472) if ResultCode = SUCCESS. The contents of the Link Margin field of the received Link Measurement Report frame. Present only(#1472) if Result- Code = SUCCESS. LinkMargin INTEGER As defined in the TPC Report element Code = SUCCESS. As defined in 15.4.8.5 (Received Channel Power Indicator Measurement Request frame received at the reporting STA. Present only(#1472) if ResultCode = SUCCESS.
The contents of the Transmit Power field of the received Link Measurement Report frame. Present only(#1472) if ResultCode element As defined in the TPC Report element INTEGER INTEGER As defined in the TPC Report element INTEGER As defined in The Code = SUCCESS. As defined in The RCPI level of the corresponding Link Measurement Request frame received at the reporting STA. Present only(#1472) if ResultCode element reporting STA. Present only(#1472) if ResultCo
Transmit Power field of the received Link Measurement Report frame. Present only (#1472) if ResultCode element TransmitPower INTEGER INT
the received Link Measurement Report frame. Present only(#1472) if ResultCode = SUCCESS. The contents of the Link Margin field of the received Link Measurement Report frame. Present only(#1472) if Result- Code = SUCCESS. As defined in 15.4.8.5 (Received Channel Power Indicator Measurement(11k)), or 17.3.10.6 the received Link Measurement Report frame received at the reporting STA. Present only(#1472) if ResultCode = SUCCESS.
As defined in the TPC Report element As defined in the TPC Report element INTEGER INTEGER As defined in the TPC Report element As defined in the TPC Report element As defined in the TPC Report element As defined in the TPC Report only(#1472) if Result-Code received Link Massurement Report frame. Present only(#1472) if Result-Code = SUCCESS. As defined in the TPC Report only(#1472) if Result-Code = SUCCESS. As defined in The RCPI level of the corresponding Link Measurement Request frame received at the reporting STA. Present only(#1472) if ResultCode = SUCCESS.
As defined in the TPC Report element SUCCESS. The contents of the Link Margin field of the received Link Measurement Report frame. Present only(#1472) if Result-Code = SUCCESS. As defined in the TPC Report element Success only (#1472) if Result-Code = SUCCESS. As defined in the TPC Report only(#1472) if Result-Code = SUCCESS. As defined in the TPC Report only(#1472) if Result-Code = SUCCESS. As defined in the TPC Report only(#1472) if Result-Code = SUCCESS. As defined in the TPC Report only(#1472) if Result-Code Success only (#1472) if
TransmitPower INTEGER TPC Report element SUCCESS. The contents of the Link Margin field of the received Link Measurement Report frame. Present only(#1472) if Result-Code = SUCCESS. As defined in the TPC Report element LinkMargin INTEGER As defined in the TPC Report only(#1472) if Result-Code = SUCCESS. As defined in The RCPI level of the corresponding Link Measurement Request frame received at the reporting STA. Present only(#1472) if ResultCode = SUCCESS.
TransmitPower INTEGER element = SUCCESS. The contents of the Link Margin field of the received Link Measurement Report frame. Present only(#1472) if Result-Code = SUCCESS. As defined in the 15.4.8.5 (Received Channel Power Indicator Measurement(11k)), or 17.3.10.6 SUCCESS.
The contents of the Link Margin field of the received Link Measurement Report frame. Present only(#1472) if Result- Code = SUCCESS. As defined in 15.4.8.5 (Received Channel Power Indicator Measurement(11k)), or 17.3.10.6 The COTESS. As defined in received at the reporting STA. Present only(#1472) if Result- corresponding Link Measurement Request frame received at the reporting STA. Present only(#1472) if ResultCode = SUCCESS.
As defined in the TPC Report element Code = SUCCESS. As defined in 15.4.8.5 (Received Channel Power Indicator Measurement Request frame received at the reporting STA. Present only(#1472) if Result-code frame received at the reporting STA. Present only(#1472) if Result-code element Code = SUCCESS.
As defined in the TPC Report element Code = SUCCESS. As defined in the TPC Report element Code = SUCCESS. As defined in 15.4.8.5 corresponding Link Measurement Request frame received at the Indicator Measurement(11k)), or 17.3.10.6 received Link Measurement Report frame received at the only(#1472) if ResultCode = SUCCESS.
As defined in the TPC Report element Code = SUCCESS. As defined in 15.4.8.5 (Received Channel Power Indicator Measurement(11k)), or 17.3.10.6 Measurement Report frame. Present only(#1472) if Result-Code = SUCCESS. The RCPI level of the corresponding Link Measurement Request frame received at the reporting STA. Present only(#1472) if ResultCode = SUCCESS.
As defined in the TPC Report only(#1472) if Result-element Code = SUCCESS. As defined in 15.4.8.5 corresponding Link (Received Channel Power Indicator Measurement(11k)), or 17.3.10.6 frame. Present only(#1472) if Result-code only(#1472) if Result-code element only(#1472) if ResultCode element only(#1472) if ResultCode element only(#1472) if ResultCode element only(#1472) if ResultCode element element only(#1472) if ResultCode element only(#147
TPC Report element code = SUCCESS. As defined in 15.4.8.5 corresponding Link (Received Measurement Request frame received at the Indicator Measurement(11k)), or 17.3.10.6 report only(#1472) if Result-code element conly(#1472) if Result-code element only(#1472) if Result-code element conly(#1472) if Result-code element conl
LinkMargin INTEGER element Code = SUCCESS. As defined in 15.4.8.5 corresponding Link (Received Measurement Request Ghannel Power Indicator Measurement(11k)), or 17.3.10.6 The RCPI level of the corresponding Link Measurement Request frame received at the reporting STA. Present only(#1472) if ResultCode = SUCCESS.
As defined in 15.4.8.5 (Received Channel Power Indicator Measurement(11k)), or 17.3.10.6 The RCPI level of the corresponding Link Measurement Request frame received at the reporting STA. Present only(#1472) if ResultCode = SUCCESS.
15.4.8.5 (Received Measurement Request Channel Power Indicator reporting STA. Present Measurement(11k)), or 17.3.10.6 Corresponding Link Measurement Request frame received at the only(#1472) if ResultCode = SUCCESS.
(Received Channel Power Indicator Measurement(11k)), or 17.3.10.6 (Received Measurement Request frame received at the reporting STA. Present only(#1472) if ResultCode = SUCCESS.
Channel Power Indicator Measurement(11k)), or 17.3.10.6 Indicator Frame received at the reporting STA. Present only(#1472) if ResultCode = SUCCESS.
Measurement(11k only(#1472) if ResultCode = SUCCESS.
)), or 17.3.10.6 = SUCCESS.
(Received Chan-
1 1 1
nel Power
Indicator
Measure-
ment(11k)), or
18.4.8.5
(Received
Channel Power
Indicator
Measurement(11k
RCPI REAL))
The RSNI of the
corresponding Link Measurement Request
frame received at the
As defined in reporting STA. Present
7.3.2.41 (RSNI only(#1472) if ResultCode
RSNI REAL element(11k) = SUCCESS
Receive INTEGER 0~255 The Antenna ID
AntennaID corresponding to the
antenna on which the Link
Measurement Request
frame was received at the
report-ing STA. Antenna
ID is defined in 7.3.2.29
(EDCA Parameter Set
element).

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

5.3.1.4 Event service data types

1

2

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

```
4
 5
     COEX_E_ID ::= ENUMERATED{
 6
7
8
9
        NewBSSStart,
        Interference,
        NewChannelAdded,
        ChannelRemoved,
10
        NeighbourChange,
11
        InformationForSharing,
12
13
14
        NetworkChannelChanged,
     }
15
16
     E_PARAM_ID ::= ENUMERATED{
17
        BSSID,
18
        NeighbourChange,
19
        InterferenceLevels,
20
21
22
23
24
25
26
27
28
29
30
        AddedChannelList,
        RemovedChannelList,
        UpdatedNetworkChannels
     }
     E_PARAM_VALUE ::= CHOICE {
       BSSID
                                             STRING,
       NeighbourChange
                                             NEIGHBOUR_CHANGE,
       InterferenceLevels
                                             INTERFERENCE_LEVELs,
        AddedChannelList
                                             LIST_TV_CHANNELS,
31
32
33
        RemovedChannelList
                                             LIST_TV_CHANNELS,
        UpdatedNetworkChannels
                                             NETWORK_CHANNELS,
34
     }
35
36
     E_PARAM ::= SEQUENCE{
```

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

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

15 16

14

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 specifiying 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 specifiying 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.

```
1
    TU ::= INTEGER
 2
    PHY_PARAM_SET ::= SET{
 4
5
6
7
      aSlotTime
                                          INTEGER
      aSIFSTime
                                          INTEGER
      aCCATime
                                          INTEGER
      aPHY-RX-START-Delay
                                          INTEGER
89
      aRxTxTurnaroundTime
                                         INTEGER
      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
21
22
23
24
25
26
27
28
29
30
      \mathtt{aMPDUDurationFactor}
                                          INTEGER
       aMPDUMaxLength
                                          INTEGER
       aCWmin
                                          INTEGER
       aCWmax
                                          INTEGER
     }
    CF_PARAM_SET ::= SET{
       CfpCount
                              INTEGER
       CfpPeriod
                              INTEGER
       CfpMaxDur
                             TU
       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
53
      STACount
                                          INTEGER
       CHUtilization
                                          INTEGER
54
       AvailableAddmissionCap
                                          INTEGER
55
56
57
    NEIBR BSS ::= SEQUENCE {
```

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```
1
2
3
4
5
6
7
8
9
10
       NeighbourBSSId
                                           BSSID,
       NeighbourBSSChannel
                                           INTEGER
     NEIBR_BSS_SET ::= SEQUENCE OF NEIBR_BSS
     TV_CHANNEL_NUMBER ::= INTEGER
     TV_CHANNEL_NUMBERS ::= SEQUENCE OF TV_CHANNEL_NUMBER
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
```

Table 8 describes parameters of LIST_TV_CHANNELS data type.

23

22

24

Table 8 – Parameters of LIST_TV_CHANNELS data type

Name	Type	Valid range	Description	Note
NumberOfTV Channels	INTEGER	Dependens 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

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
8
9
10
    POLARIZATION ::= ENUMERATED{
      Linear,
      Elliptical,
      Circular,
11
12
    }
13
14
15
16
17
18
19
    ANTENNA_GAIN ::= SEQUENCE{
     Country
                                           STRING,
       TVChannelNumber
                                           TV_CHANNEL_NUMBER,
       AntennaGain
20
21
22
23
24
25
26
27
28
29
30
    ANTENNA_GAINS ::= SEQUENCE OF ANTENNA_GAIN
    ANTENNA_INFO ::= SEQUENCE{
                                          REAL,
      AntennaBandwidth
       AntennaBeamPointing
                                          REAL,
                                          REAL,
      AntennaBeamwidth
      AntennaDirectivityGain
                                          REAL,
                                          REAL,
      AntennaHeight
                                          POLARIZATION,
      AntennaPolarization
                                          ANTENNA_GAINS
       AntennaGains
    }
31
```

Table 10 describes parameters of ANTENNA INFO data type.

33

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 polarization1: Circular polarization2: 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
4
5
6
7
8
9
10
11
12
13
     TVBD_INFO ::= ENUMERATED{
        WRAN_BS,
        WRAN_CPE,
        WLANSTA,
        WLANAP,
        MAN_AP,
        MAN_STA
     }
     NEIGHBOUR ::= SEQUENCE{
```

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

Table 11 describes parameters of SENSING WINDOW data type.

4546

44

Table 11 – Parameters of SENSING WINDOW data type

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

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

```
1
 2
3
4
5
6
7
     SIGNAL_TYPE ::= ENUMERATED{
        Any,
        802.22WRAN,
        ATSC,
        DVB_T,
        ISDB_T,
 8
       NTSC,
       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
22
23
24
25
26
27
28
29
     SENSING_MODE ::= ENUMERATED{
       Hard,
        {\tt HardWithConfidenceValue,}
        Soft,
        SoftWithConfidenceValue
     PERF_METRIC ::= SEQUENCE{
        PerfMetricPd
                                INTEGER,
30
        PerfMetricPfa
                                INTEGER
31
```

Table 12 describes parameters of PERF_METRIC data type.

3435

32

33

Table 12 – Parameters of PERF METRIC data type

Name	Туре	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 2 3 4 5 6 7 8 9 BASIC_REPORT ::= SEQUENCE{ BSS BOOLEAN, OFDM BOOLEAN, UnidentifiedSignal BOOLEAN, PrimaryServiceSignal BOOLEAN, Unmeasured BOOLEAN, } 10

Table 13 describes parameters of BASIC_REPORT data type.

12 13

11

Table 13 - Parameters of RASIC REPORT data to

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	
OFDM	BOOLEAN		bit shall be set to 0. 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	

			1
		MPDU. Otherwise, the	
		Unidentified Signal bit	
		shall be set to 0. The	
		definition of significant	
		power	
		is implementation	
		dependent.	
PrimaryService	BOOLEAN	Shall be set to 1 when	
Signal		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.	

```
2
3
4
5
6
```

```
CCA_REPORT ::= SEQUENCE{
                        REAL,
  CCABusy
}
```

7 Table 14 describes parameters of CCA_REPORT data type.

8 9

Table 14 – Parameters of CCA REPORT data type

Name	Туре	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	

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

1

```
2
3
4
5
6
7
8
    RPI_REPORT ::= SEQUENCE{
       RPIHistogramReportRPI0Density0
                                                        INTEGER,
       RPIHistogramReportRPIODensity1
                                                        INTEGER,
       RPIHistogramReportRPI0Density2
                                                        INTEGER,
       RPIHistogramReportRPIODensity3
                                                        INTEGER,
       RPIHistogramReportRPI0Density4
                                                        INTEGER,
       RPIHistogramReportRPIODensity5
                                                        INTEGER,
       RPIHistogramReportRPIODensity6
                                                        INTEGER,
10
       RPIHistogramReportRPIODensity7
                                                        INTEGER
     }
```

11 12

Table 15 describes parameters of RPI REPORT data type.

14

13

15

Table 15 – Parameters of RPI REPORT data type

Name	Туре	Valid range	Description	Note
RPIHistogram ReportRPI0 Density0	INTEGER	0~255	Density for Power ≤ –87	
RPIHistogram ReportRPI0 Density1	INTEGER	0~255	Density for −87 < Power ≤−82	
RPIHistogram ReportRPI0 Density2	INTEGER	0~255	Density for −82 < Power ≤−77	
RPIHistogram ReportRPI0 Density3	INTEGER	0~255	Density for −77 < Power ≤−72	
RPIHistogram ReportRPI0 Density4	INTEGER	0~255	Density for −72 < Power ≤−67	
RPIHistogram ReportRPI0 Density5	INTEGER	0~255	Density for −67 < Power ≤−62	
RPIHistogram ReportRPI0 Density6	INTEGER	0~255	Density for −62 < Power ≤−57	
RPIHistogram ReportRPI0 Density7	INTEGER	0~255	Density for –57 < Power	

```
17
     CH_MEASU_REPORT ::= CHOICE{
       BasicReport BASIC_REPORT,
CCAReport CCA REPORT.
18
19
        CCAReport
                              CCA_REPORT,
20
        RPIHistogramReport RPI_REPORT
21
     }
```

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

Table 16 describes parameters of MODE0RESULT data type.

20

19

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
```

Table 17 describes parameters of MODE1RESULT data type.

3132

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

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Confidence	CONFIDENCE_	Confidence of	IEEE 1900.6
Level	LEVEL	measurement result for	
		each type of signal	
		specified	

1

```
2
3
4
5
6
7
8
    MODE2RESULT ::= SEQUENCE{
      SignalType
      Strength
```

SIGNAL_TYPE, REAL

MODE2RESULTS ::= SEQUENCE OF MODE2RESULT

9 Table 18 describes parameters of MODE2RESULT data type.

10 11

Table 18 – Parameters of MODE2RESULT data type

Name	Туре	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
16
      StandardDeviation REAL
```

17 18

19

MODE3RESULTS ::= SEQUENCE OF MODE3RESULT

Table 19 describes parameters of MODE3RESULT data type.

20 21

22

Table 19 – Parameters of MODE3RESULT data type

Name	Туре	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
                             MODEORESULTs,
 234567
                            MODE1RESULTs,
       ModelResults
                             MODE2RESULTs,
       Mode2Results
       Mode3Results
                             MODE3RESULTs
    TRANSMISSIONINTERVAL ::= SEQUENCE{
89
      TransmissionStart
                                           TU,
       TransmissionDuration
10
       TransmissionChannel
                                          Network_CHANNEL
11
12
13
    TRANSMISSIONSEQUENCE ::= SEQUENCE OF TRANSMISSIONINTERVAL
14
15
    SCHEDULE ::= SEQUENCE{
16
      SchedulingStartTime
                                          TU,
17
       SchedulingPeriodDuration
                                          TU,
18
                                          INTEGER,
       NumberOfSchedulingPeriods
19
       TransmissionSequence
                                          TRANSMISSIONSEQUENCE
20
21
22
23
24
25
26
27
28
29
     INTERFERENCE_LEVEL ::= SEQUENCE{
       NetworkChannel
                                           NETWORK CHANNEL,
       Interference
                                           REAL
     INTERFERENCE_LEVELs ::= SEQUENCE OF INTERFERENCE_LEVEL
     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

6.1 Procedures

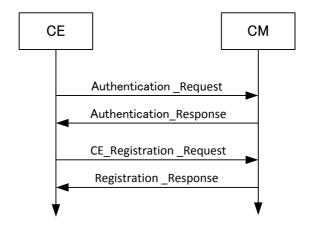
1

2

6.1.1 Registration procedures

3 6.1.1.1 CE authentication and registration

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



6

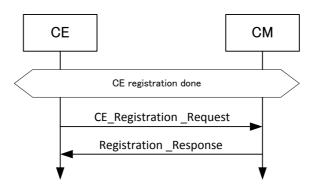
7

8

Figure 6 CE authentication and registration procedure

6.1.1.2 CE registration update

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



11

12

13

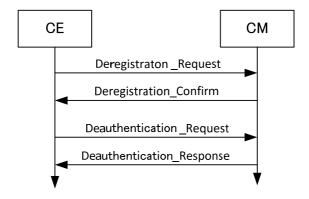
14

Figure 7 CE registration update procedure

6.1.1.3 CE deregistration and deauthentication

This procedure is used by CE to deregister its TVBD network or device from CM and to deauthenticate

itself from CM. The procedure is shown in the following Figure.



2

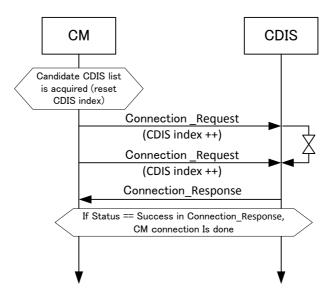
3

Figure 8 CE deregistration and deauthentication procedure

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

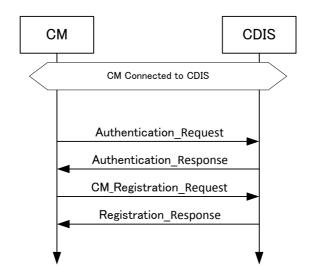
8

Figure 9 CM connection to CDIS procedure

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

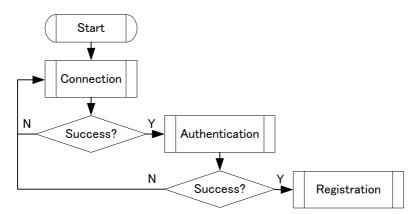
10 networks and devices to CDIS. The procedure is shown in the following Figure.



2

Figure 10 CM authentication and registration procedure

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



5

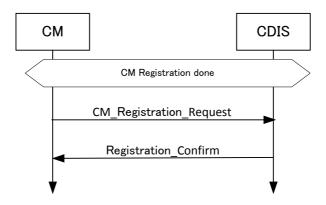
6

8

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

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 10 procedure is shown in the following Figure.



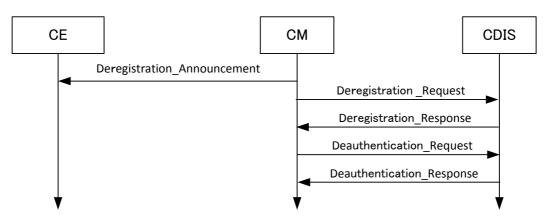
2

3

CM registration update procedure

6.1.1.7 CM deregistration and deauthentication

This procedure is used by CM to deregister its TVBD networks and devices from CDIS and to 5 deauthenticate itself from CDIS. The procedure is shown in the following Figure.



6

7

8

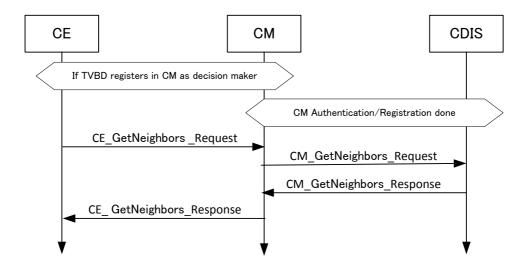
9

Figure 13 CM deregistration and deauthentication procedure

6.1.2 Neighbour discovery procedures

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 11 this CE. The procedure is shown in the following Figure.



2

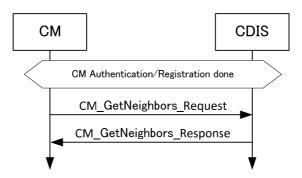
3

Figure 14 CE neighbour discovery procedure

6.1.2.2 CM neighbour discovery

This procedure is used by CM to obtain information on neighbours for one TVBD network or device served 5

by this CM. The procedure is shown in the following Figure.



6

7

8

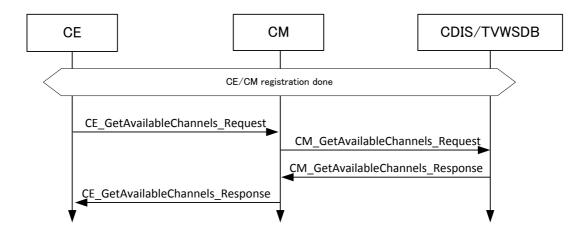
9

Figure 15 CM neighbour discovery procedure

6.1.3 Get available channel list procedures

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 11 following Figure.



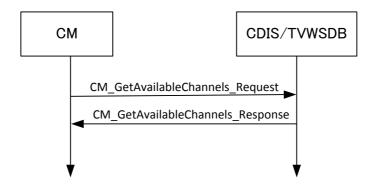
2

3

Figure 16 CE acquires available channel list from CM

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

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.



6

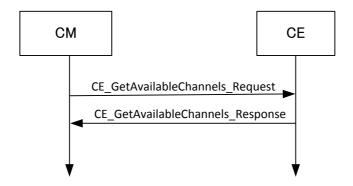
7

8

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

6.1.3.3 CM acquires available channel list from CE

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



2

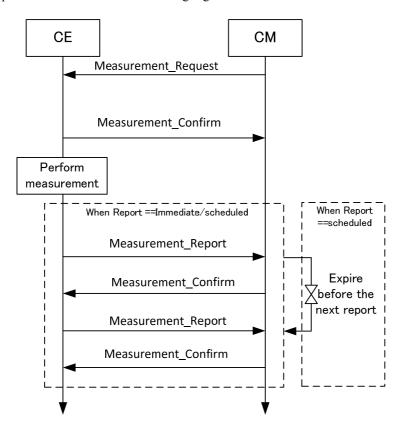
3

Figure 18 CM acquires available channel list from CE

6.1.4 Measurement procedures

4 6.1.4.1 Measurement request and report

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



7

Figure 19 Measurement and report procedure

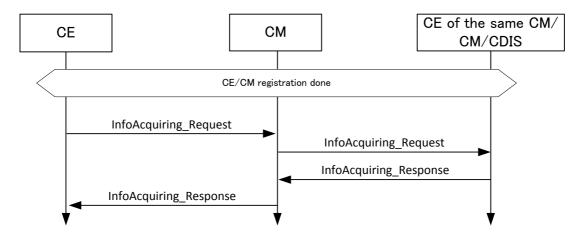
- 1 When report type is set to on-demand value, the measurement results are collected from CE by using CE
- 2 information collection procedure.

3 6.1.5 Information collection procedures

6.1.5.1 CE information collection

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

4



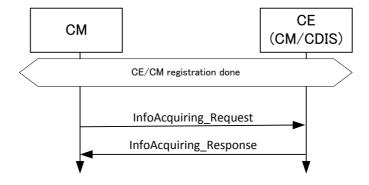
7 8

9

Figure 20 CE information collection procedure

6.1.5.2 CM information collection

10 This procedure is used by CM to collect information from CE, another CM, or CDIS. The procedure is 11 shown in the following Figure.



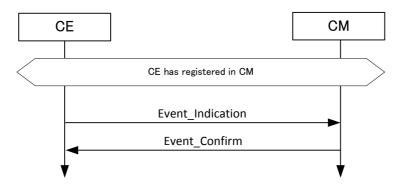
12

Figure 21 CM information collection procedure

6.1.6 Event procedures

2 6.1.6.1 Event from CE to CM

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



4

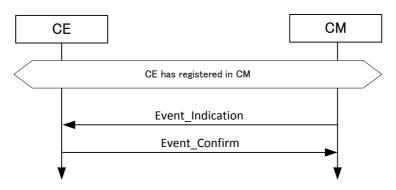
5

1

Figure 22 Event from CE to CM procedure

6 6.1.6.2 Event from CM to CE

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



8

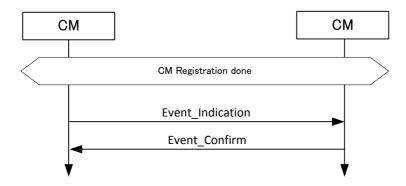
9

10

Figure 23 Event from CM to CE procedure

6.1.6.3 Event from CM to CM

11 This procedure is used by CM to indicate an event to another CM. The procedure is shown in the following 12 Figure.



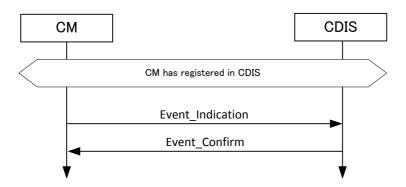
2

3

Figure 24 Event from CM to CM procedure

6.1.6.4 Event from CM to CDIS

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



6

7

8

Figure 25 Event from CM to CDIS procedure

6.1.6.5 Event from CDIS to CM

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

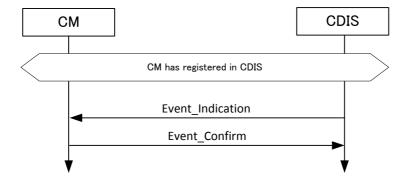
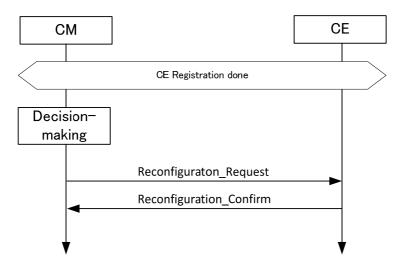


Figure 26 Event from CDIS to CM procedure

6.1.7 Reconfiguration procedures

3 6.1.7.1 CE reconfiguration

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



5

6

1

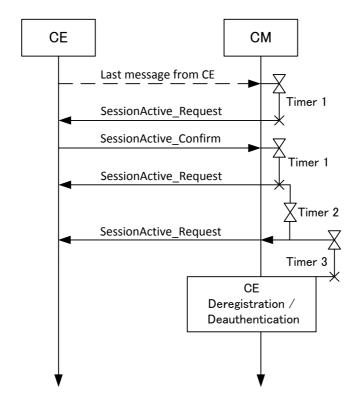
2

Figure 27 CE reconfiguration procedure

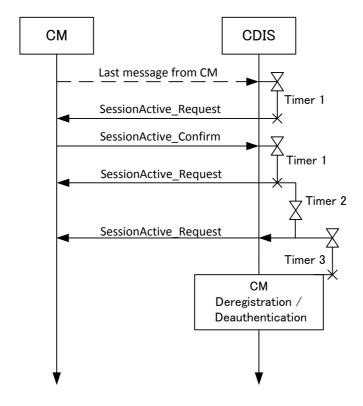
7 6.1.8 Session activity check procedures

8 6.1.8.1 CE session activity check

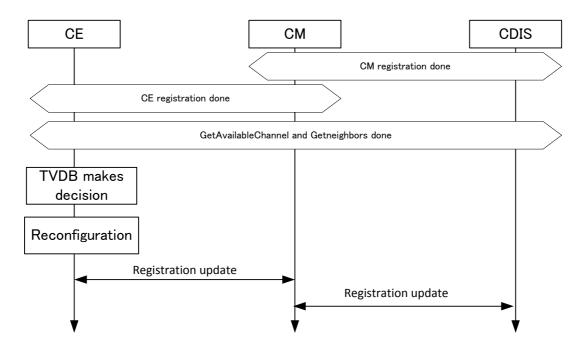
9 This procedure is used by CM to check that session with one of its CEs is still active.



- CE session activity check procedure Figure 28
- 3 6.1.8.2 CM session activity check
- 4 This procedure is used by CDIS to check that session with one of CMs is still active.



- Figure 29 CM session activity check procedure
- 3 6.1.9 Examples of using procedures (informative)
- 4 6.1.9.1 Coexistence decisions are done by TVBD
- 5 The following Figure shows example of using the above described procedure for scenario when decisions
- 6 are done by TVBD network or device.



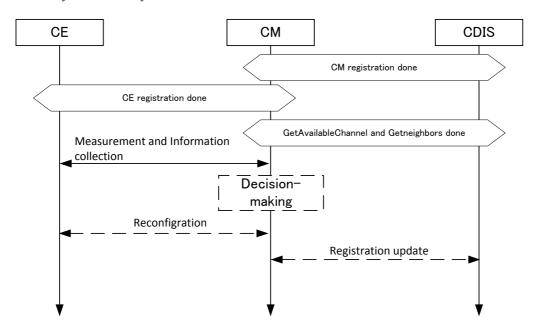
3

1

Figure 30 Coexistence decisions are done by TVBD

6.1.9.2 Coexistence decisions are done by Coexistence System

The following Figure shows example of using the above described procedure for scenario when decisions 5 are done by coexistence system.



6

Figure 31 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**

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

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

6 **6.2.1.2 Authentication_Response**

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

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

9 **6.2.1.3 Deauthentication_Request**

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

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

6.2.1.4 Deauthentication_Response

1

- 23 This message is sent from CM to CE to confirm or reject CE deauthentication. Also, this message is sent
 - from CDIS to CM to confirm or reject CM deauthentication.

Header					
Information element	Value	Description			
Source Identifier	CM/CDIS ID	Source identifier			
Destination Identifier	CE/CM ID	Destination identifier			
ACK Policy	ACK required / ACK not	Request to send acknowledgement of			
	required	reception			
	Payload				
Information element	Value	Description			
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
- to CM. This message is used for initial registration or for registration update.

Header				
Information element	Value	Description		
Source Identifier	CE ID	Source identifier		
Destination Identifier	CM ID	Destination identifier		
ACK Policy	ACK required / ACK not	Request to send acknowledgement of		
	required	reception		
	Payload			
Information element	Value	Description		
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 9 This message is sent from CM to CDIS to register information of TVBD networks or devices served by this
- CM to CDIS. This message is used for initial registration or for registration update.

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

Operation code	New / Add / Modify /	Indicates whether this is new
	Remove	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

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

	Header	
Information element	Value	Description
Source Identifier	CM/CDIS ID	Source identifier
Destination Identifier	CE/CM ID	Destination identifier
ACK Policy	ACK required / ACK not	Request to send acknowledgement of
	required	reception
	Payload	
Information element	Value	Description
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 message does not have any payload.

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

7 6.2.1.9 Deregistration_Request

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

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

Payload		
Information element Value Description		
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.

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

Header		
Information element	Value	Description
Source Identifier	CM ID	Source identifier
Destination Identifier	CDIS ID	Destination identifier
ACK Policy	ACK required / ACK not	Request to send acknowledgement of
-	required	reception
Payload		
Information element	Value	Description
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.

Header		
Information element	Value	Description
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
Payload		
Information element	Value	Description
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.

	Header	
Information element	Value	Description
Source Identifier	CE ID	Source identifier
Destination Identifier	CM ID	Destination identifier
ACK Policy	ACK required / ACK not	Request to send acknowledgement of
	required	reception
	Payload	
Information element	Value	Description
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.

Header			
Information element	Value	Description	
Source Identifier	CM ID	Source identifier	
Destination Identifier	CE ID	Destination identifier	
ACK Policy	ACK required / ACK not	Request to send acknowledgement of	
	required	reception	
	Payload		
Information element	Value	Description	
Note: Information elements below	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.

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

6 6.2.2.4 CM_GetNeighbors_Response

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.

Header		
Information element	Value	Description
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	
	Payload		
Information element	Value	Description	
Note: Information elements below	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

This message is sent form CE to CM to request available channel list from CM. Also, this message is sent from CM to CE to request available channel list from CE. This message does not have payload.

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

5 6.2.3.2 CE_GetAvailableChannels_Response

This message is sent from CM to CE to provide available channel list to CE. Also, this message is sent from CE to CM to provide available channel list to CM.

Header		
Information element	Value	Description
Source Identifier	CM ID	Source identifier
Destination Identifier	CE ID	Destination identifier
ACK Policy	ACK required / ACK not	Request to send acknowledgement of
	required	reception
	Payload	
Information element	Value	Description
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

8 6.2.3.3 CM_GetAvailableChannels_Request

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

Header

Information element	Value	Description	
Source Identifier	CM ID	Source identifier	
Destination Identifier	CDIS/TVWSDB ID	Destination identifier	
ACK Policy	ACK required / ACK not	Request to send acknowledgement of	
	required	reception	
	Payload		
Information element	Value	Description	
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 CM.

Header		
Information element	Value	Description
Source Identifier	CDIS/TVWSDB ID	Source identifier
Destination Identifier	CM ID	Destination identifier
ACK Policy	ACK required / ACK not	Request to send acknowledgement of
•	required	reception
	Payload	
Information element	Value	Description
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.

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

6.2.4.2 Measurement_Report

1

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

Header		
Information element	Value	Description
Source Identifier	CE ID	Source identifier
Destination Identifier	CM ID	Destination identifier
ACK Policy	ACK required / ACK not	Request to send acknowledgement of
	required	reception
Payload		
Information element	Value	Description
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.

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

6 6.2.5 Information collection procedure messages

7 6.2.5.1 InfoAcquiring_Request

- This message is sent from CM to CE to request CE to obtain information from CE. Also, this message is 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 this CM. Also, this message is sent from CM to CDIS to obtain information from
- 11

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

6.2.5.2 InfoAcquiring_Response

- This message is sent from CE to CM to provide requested information to CM. Also, this message is sent
- 23 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 this CM. Also, this message is sent from CDIS to CM to provide
- requested information to CM.

1

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

Header		
Information element	Value	Description
Source Identifier	CE/CM/CDIS ID	Source identifier
Destination Identifier	CM/CE/CDIS ID	Destination identifier
ACK Policy	ACK required / ACK not	Request to send acknowledgement of
-	required	reception
Payload		
Information element	Value	Description
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.

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

Payload		
Information element	Value	Description
None	None	None

1 6.2.7 Reconfiguration procedure messages

2 6.2.7.1 Reconfiguration_Request

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

	Header	
Information element	Value	Description
Source Identifier	CM ID	Source identifier
Destination Identifier	CE ID	Destination identifier
ACK Policy	ACK required / ACK not	Request to send acknowledgement of
	required	reception
Payload		
Information element	Value	Description
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 or device served by this CE.

Header		
Information element	Value	Description
Source Identifier	CE ID	Source identifier
Destination Identifier	CM ID	Destination identifier
ACK Policy	ACK required / ACK not	Request to send acknowledgement of
	required	reception
Payload		
Information element	Value	Description
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.

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

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
- CM to CDIS to confirm that this CM is still active. This message does not have any payload.

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

7. Coexistence mechanisms and algorithms 4

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