

A framework for Management and Control of microwave and millimeter wave interface parameters

draft-ietf-ccamp-microwave-framework-01

<https://github.com/ietf-ccamp-mw/IETF-CCAMP-Microwave-YANG-Data-Model>

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Status & Way Forward

- The draft was adopted by CCAMP WG, Dec 2016
- Update from -00
 - Clarification that the definition of the data nodes in the YANG Data Model should be based on established microwave equipment and radio standards, such as ETSI EN 302 217
 - The purpose is to ensure a good alignment between the various standardization and modeling initiatives within the microwave radio link domain
- No open topics
 - Microwave design team (MDT) considers the framework to be complete
 - MDT has used it as the basis for the YANG Data Model for Microwave Radio Link
- Next step: Ask for WG Last Call

A YANG Data Model for Microwave Radio Link

draft-ietf-ccamp-mw-yang-01

<https://github.com/ietf-ccamp-mw/IETF-CCAMP-Microwave-YANG-Data-Model>

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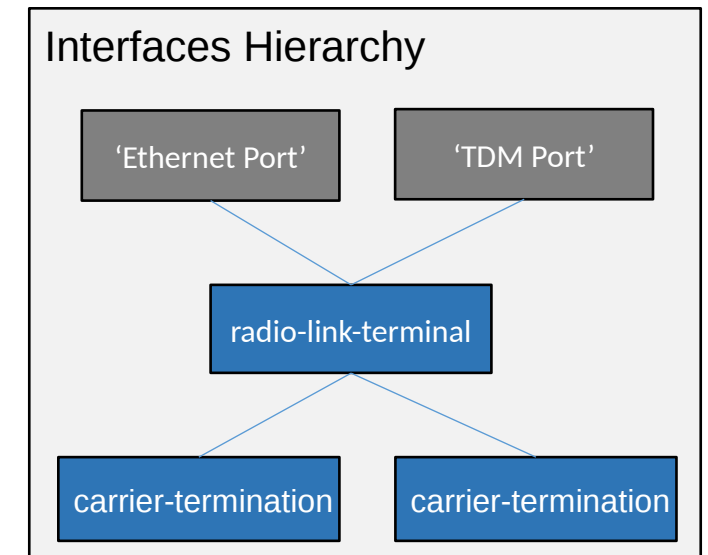
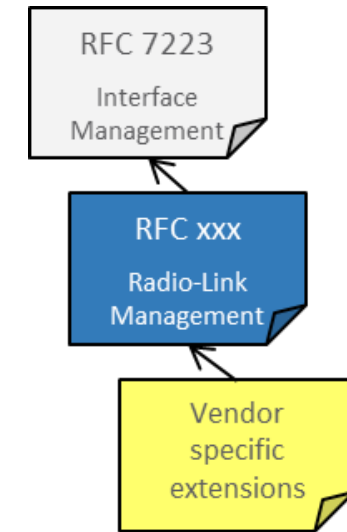
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Overview

- The draft defines a YANG data model in order to control and manage the radio link interfaces, and the connectivity to packet (typically Ethernet) interfaces in a microwave/millimeter wave node.
 - **follows the framework** [draft-ietf-ccamp-microwave-framework-01], which defines the use cases and requirements, and provides detailed gap analysis of the current existing/drafts models
 - **augments RFC 7223** to align with the same structure for management of the packet interfaces
 - **uses established microwave equipment and radio standards**, such as ETSI EN 302 217-2, and the [draft-ahlberg-ccamp-microwave-radio-link-01] and the **ONF Microwave Model** as the basis for the definition of the detailed configuration parameters and proposing new ones to cover identified gaps



Status

- The draft was adopted by CCAMP WG, April 2017
 - Comments received:
 - *“it is not clear where it is the responsibility for the definition, update, modification or maintenance of the parameters considered in the model.”*
 - *“the data plane/technology-specific and the coordination framework for the work in CCAMP should be clear.”*
- Update from -00
 - Editorial changes:
 - add a clarification that the definition of the data nodes are **based on established microwave equipment and radio standards**, such as **ETSI EN 302 217**
 - to ensure a good alignment between the various standardization and modeling initiatives within the microwave domain and thereby address a concern raised during the adoption of the model
 - a new sub-section 3.2 to explain that some attribute in RFC7223 may not be relevant for this model.
 - Model changes:
 - **remove rx-frequency-config**, and update the definitions of rx-frequency and duplex-distance to enable multiple configuration ways
 - **add forced-switch** as an identity for protection-external-commands
 - refine the model by better text description, or change the units in some leaves
 - Two new co-authors: Daniela Spreafico from Nokia, and Marko Vaupotic from Aviat
- Model validated in practice at IETF Hackathon
 - Two SDN applications implemented – Energy Efficiency & Dynamic Frequency Control
 - Received the award for “Best Overall” – See us at Bits-N-Bites

Model Changes

CT – RX Frequency Config

```
leaf rx-frequency {
  type uint32;
  units "kHz";
  description
    "Selected receiver frequency.
     Mandatory and writeable when rx-frequency-config=true.
     Otherwise read-only and calculated from tx-frequency and
     duplex-distance.";
}

leaf rx-frequency-config {
  type boolean;
  default "true";
  description
    "Enable (true) or disable (false) direct configuration of
     rx-frequency and instead using a defined duplex distance.";
}

leaf duplex-distance {
  when "../rx-frequency-config = 'false'";
  type uint32;
  units "kHz";
  mandatory true;
  description
    "Distance between Tx & Rx frequencies.
     Used to calculate rx-frequency when
     rx-frequency-config=false.";
}
```



```
leaf rx-frequency {
  type uint32;
  units "kHz";
  description
    "Selected receiver frequency.
     Overrides existing value in duplex-distance.
     Calculated from tx-frequency and duplex-distance if
     only duplex-distance is configured.
     Must match duplex-distance if both leaves are
     configured in a single operation.";
}

leaf duplex-distance {
  type uint32;
  units "kHz";
  description
    "Distance between Tx & Rx frequencies.
     Used to calculate rx-frequency when
     rx-frequency is not specifically configured.
     Overrides existing value in rx-frequency.
     Calculated from tx-frequency and rx-frequency if only
     rx-frequency is configured.
     Must match rx-frequency if both leaves are configured
     in a single operation.";
}
```

Model Changes

Protection – External Commands

```
/*
 * protection-external-commands identities
 */

identity protection-external-commands{
  description
  | "Protection external commands for trouble shooting purpose.";
}

identity manual-switch{
  base protection-external-commands;
  description
  | "A switch action initiated by an operator command. It switches
normal traffic signal to the protection transport entity.";
}
```



```
/*
 * protection-external-commands identities
 */

identity protection-external-commands{
  description
  | "Protection external commands for trouble shooting
purpose.";
}

identity manual-switch{
  base protection-external-commands;
  description
  | "A switch action initiated by an operator command.
It switches normal traffic signal to the protection
transport entity.";
}

identity forced-switch{
  base protection-external-commands;
  description
  | "A switch action initiated by an operator command.
It switches normal traffic signal to the protection
transport entity and forces it to remain on that
entity even when criteria for switching back to
the original entity are fulfilled.";
}
```

NEXT Steps

- The model definition considered to be completed.
 - Restructuring according to NMDA is on-going
 - Your review and comments are welcome!

- Asking for WG LC