

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

draft-ietf-ccamp-microwave-framework-03

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

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# Status & Way Forward

- Update from -01
  - In the abstract and section 6, text is added to emphasize some part of the resulting model MAY be generic, so it could be used by other technology.
  - At end of section 7.3, the hackathon activity validating the framework and the YANG model in IETF 99 was added
  - A new co-author Daniela Spreafico is added to the draft.
- Update from -02
  - Fill in the security section
  - Editorial change to improve draft quality
- No open technical issues
- Next step:
  - WG Last Call (IPR declaration completed)

# A YANG Data Model for Microwave Radio Link

draft-ietf-ccamp-mw-yang-02

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

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# Status

- Update from -01
  - Interface Protection functionality generalized :
    - The data nodes for management of the interface protection functionality has been broken out into a separate and generic YANG data module in order to make it available also for other interface types.
  - NMDA compliance :
    - The structure of the data model has been updated according to the new Network Management Datastore Architecture (NMDA).

# Model Changes

## Protection Groups

### Generic interface protection function

#### ietf-interface-protection

```
module: ietf-interface-protection
  rw protection-groups
  +--rw protection-group* [name]
    +--rw name
    +--rw protection-architecture-type?
    +--rw protection-members*
    +--rw protection-operation-type?
    +--rw working-entity*
    +--rw revertive-wait-to-restore?
    +--rw hold-off-timer?
    +--rw protection-status?
    +---x protection-external-commands
      +---w input
      +---w protection-external-command?
  grouping
    string
    identityref
    if:interface-ref
    enumeration
    if:interface-ref
    uint16
    uint16
    identityref
    identityref
```

Uses



### Microwave specific function

#### ietf-microwave-radio-link

```
container radio-link-protection-groups {
  description
    "Configuration of radio link protected groups (1+1) of
    carrier terminations in a radio link. More than one
    protected group per radio-link-terminal is allowed.";
  uses ifprot:protection-groups {
    refine protection-group/protection-members {
      must "/if:interfaces/if:interface[if:name = current()]"
      + "/if:type = 'mrl:carrier-termination'" {
        description
          "The type of a protection member must be
          'carrier-termination'.";
      }
    }
    refine protection-group/working-entity {
      must "/if:interfaces/if:interface[if:name = current()]"
      + "/if:type = 'mrl:carrier-termination'" {
        description
          "The type of a working-entity must be
          'carrier-termination'.";
      }
    }
  }
}
```

# Model Changes

## CT - NMDA Compliance

```

augment /if:interfaces/if:interface:
  +--rw carrier-id?          string
  +--rw tx-enabled?         boolean
  +--rw tx-frequency        uint32
  +--rw rx-frequency        uint32
  +--rw duplex-distance?   uint32
  +--rw channel-separation  uint32
  +--rw polarization?     enumeration
  +--rw power-mode         enumeration
  +--rw selected-output-power power
  +--rw atpc-lower-threshold power
  +--rw atpc-upper-threshold power
  +--rw coding-modulation-mode enumeration
  +--rw selected-cm        identityref
  +--rw selected-min-acm   identityref
  +--rw selected-max-acm   identityref
  +--rw if-loop?          augment /if:interfaces-state/if:interface:
  +--rw rf-loop?         +--ro tx-oper-status?      enumeration
  +--rw ct-perfo        +--ro actual-transmitted-level? power
  +--rw recei          +--ro actual-received-level? power
  +--rw trans          +--ro actual-tx-cm?          identityref
  +--rw ber-a          +--ro actual-snr?          decimal64
  +--ro actual-xpi?    decimal64 {xpic}
  +--ro capabilities
    +--ro min-tx-frequency? uint32
    +--ro max-tx-frequency? uint32
    +--ro min-rx-frequency? uint32
    +--ro max-rx-frequency? uint32
    +--ro available-min-output-power? power
    +--ro available-max-output-power? power
  +--ro available
  +--ro available
  
```

Configuration

Status

Statistics

```

augment /if:interfaces-state/if:interface:
  +--ro tx-oper-status?      enumeration
  +--ro actual-transmitted-level? power
  +--ro actual-received-level? power
  +--ro actual-tx-cm?        identityref
  +--ro actual-snr?          decimal64
  +--ro actual-xpi?          decimal64 {xpic}
  +--ro capabilities
    +--ro min-tx-frequency? uint32
    +--ro max-tx-frequency? uint32
    +--ro min-rx-frequency? uint32
    +--ro max-rx-frequency? uint32
    +--ro available-min-output-power? power
    +--ro available-max-output-power? power
  +--ro available
  +--ro available
  
```

```

augment /if:interfaces-state/if:interface/if:statistics:
  +--ro bbe?      yang:counter32
  +--ro es?       yang:counter32
  +--ro ses?      yang:counter32
  +--ro uas?      yang:counter32
  +--ro min-rltm? power
  +--ro max-rltm? power
  +--ro min-tltm? power
  +--ro max-tltm? power
  
```

```

augment /if:interfaces/if:interface:
  +--rw carrier-id?          string
  +--rw tx-enabled?         boolean
  +--ro tx-oper-status?     enumeration
  +--rw tx-frequency        uint32
  +--rw rx-frequency        uint32
  +--rw duplex-distance?   uint32
  +--rw channel-separation  uint32
  +--rw polarization?     enumeration
  +--rw power-mode         enumeration
  +--rw maximum-nominal-power power
  +--rw atpc-lower-threshold power
  +--rw atpc-upper-threshold power
  +--ro actual-transmitted-level? power
  +--ro actual-received-level? power
  +--rw coding-modulation-mode enumeration
  +--rw selected-cm        identityref
  +--rw selected-min-acm   identityref
  +--rw selected-max-acm   identityref
  +--ro actual-tx-cm?      identityref
  +--ro actual-snr?        decimal64
  +--ro actual-xpi?        decimal64 {xpic}
  +--rw ct-performance-thresholds
  | +--rw received-level-alarm-threshold? power
  | +--rw transmitted-level-alarm-threshold? power
  | +--rw ber-alarm-threshold?          enumeration
  +--rw if-loop?          enumeration
  +--rw rf-loop?         enumeration
  +--ro capabilities
  | +--ro min-tx-frequency? uint32
  | +--ro max-tx-frequency? uint32
  | +--ro min-rx-frequency? uint32
  | +--ro max-rx-frequency? uint32
  | +--ro minimum-power?   power
  | +--ro maximum-available-power? power
  | +--ro available-min-acm? identityref
  | +--ro available-max-acm? identityref
  +--ro error-performance-statistics
  | +--ro bbe?      yang:counter32
  | +--ro es?       yang:counter32
  | +--ro ses?      yang:counter32
  | +--ro uas?      yang:counter32
  +--ro radio-performance-statistics
  +--ro min-rltm? power
  +--ro max-rltm? power
  +--ro min-tltm? power
  +--ro max-tltm? power
  
```

# Way Forward

- The model definition considered to be complete and stable
- Asking for WG LC