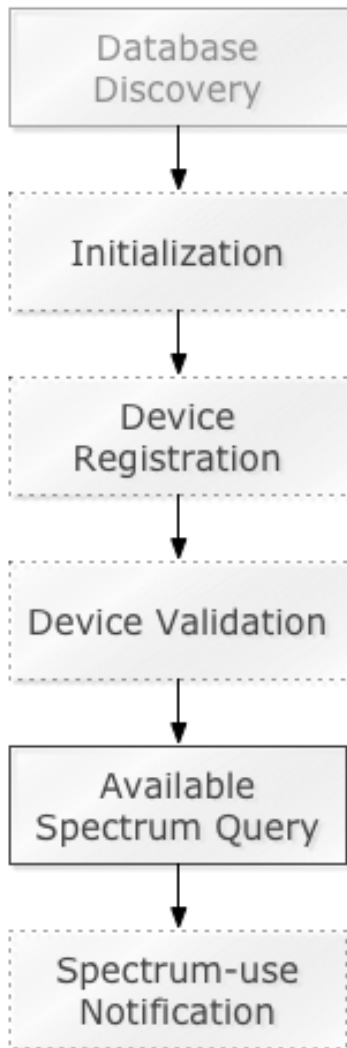


Outline

- Status of the PAWS protocol document: -06
- Proposed changes for -07
 - Terminology
 - Parameter-name changes
 - Scenario for Listing Server
- Open Items
 - Spectrum profile encoding
 - Support for multiple rulesets in single response
 - Should SPECTRUM_USE_NOTIFY be pure notification?
 - JSON-REST encoding

Protocol Overview



- Database Discovery (TBD)
- Initialization
 - Initial handshake: Exchange capability info
 - Optional for device, DB must support
- Device Registration
 - Regulator-specific (e.g., not all regulators)
- Device Validation
 - Validation of slave devices by master devices asking database
 - Regulator-specific
- Available Spectrum Query
- Spectrum-use Notification
 - Regulator-specific

Changes from version -03

- Database Discovery: Defined preconfiguration more fully
- Support ETSI-EN-301-598 white space rules
- Updated references
 - JSON-RPC 2.0
 - jCard
- General clarification and typo fixes

Database Discovery: Preconfiguration

- Allow static provisioning of Database URLs
- Allow static provisioning of Listing Server(s) for regulatory domains that require them
- All response messages allow Database to indicate upcoming change to Database URL
 - Enable Device to reconfigure itself

ESTI Support

- Added “requestType” parameter to AVAIL_SPECTRUM_REQ
 - Support “Generic Slave” request
- Added parameters IANA Registry sections

Update JSON encoding: jCard

- Original draft withdrawn, replaced with: [draft-ietf-jcardcal-jcard](#)
- Example:

```
"operator": [  
  "vcard", [  
    ["version", {}, "text", "4.0"],  
    ["fn", {}, "text", "John Frax"],  
    ["adr", {}, "text",  
      ["", "", "100 Main Street",  
        "Summersville", "CA", "90034", "USA"  
      ]  
    ],  
    ["tel", {}, "uri", "tel:+1-213-555-1212"],  
    ["email", {}, "text",  
      "j.frax@rackafrax.com"]  
  ]  
]
```

Name Changes

- Add “spectrum.paws.” prefix to JSON-encoded method names

Proposed: Terminology

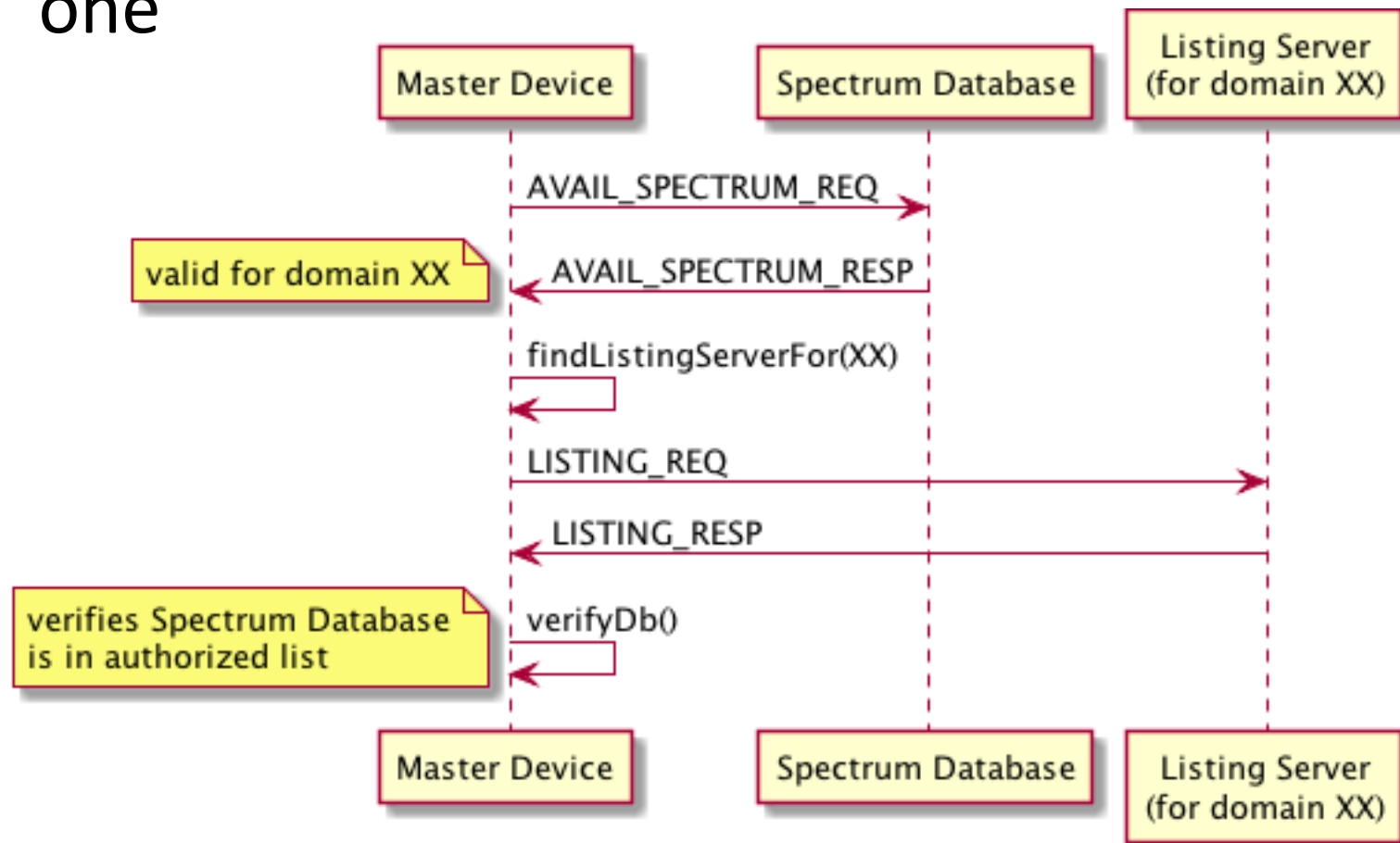
- Slave Device
 - Remove reference to “geo-location”
 - “A device that uses a Master Device to query a Spectrum Database on its behalf.”
- Reference generic JSON-RPC error codes
 - E.g., -32700 for “parse error”

Proposed: Name Change

- Clarify meaning of maximum power levels:
 - Power spectral density over a specified bandwidth
 - Propose name changes:
 - “bandwidth” -> “psdBandwidth”
 - “maxPowerDBm” -> “maxPsdDbmPerBandwidth”

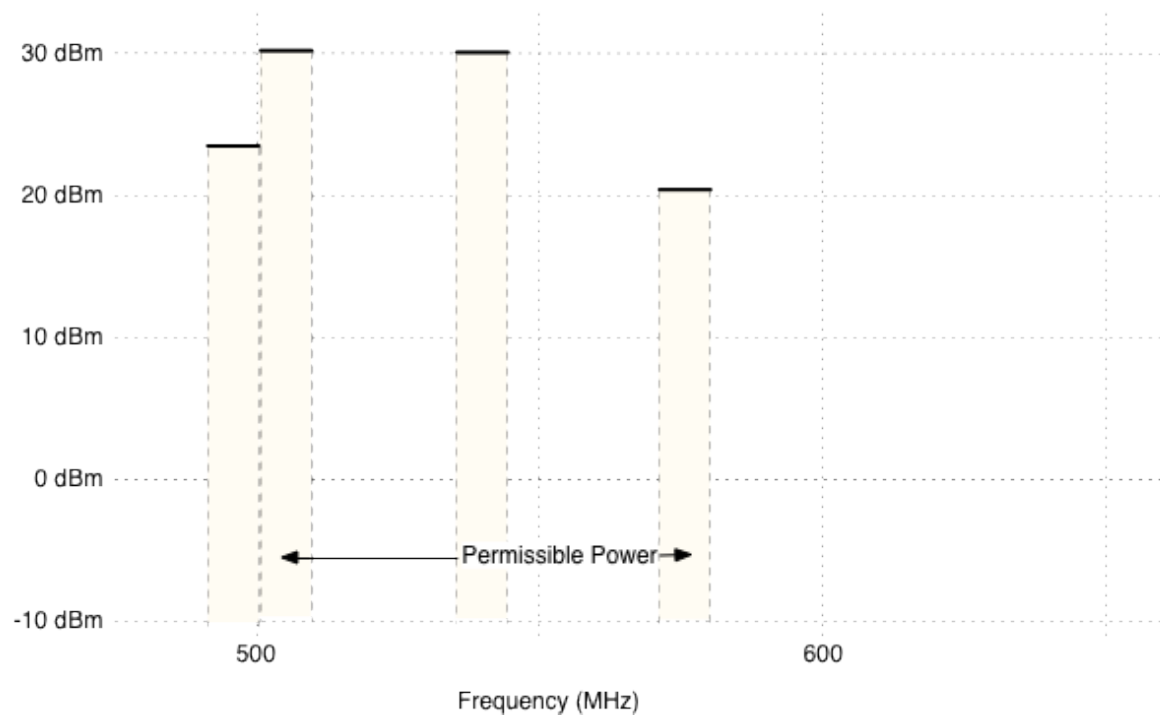
Proposed: Listing Server Scenario

- Possible bootstrap scenario, but not the only one



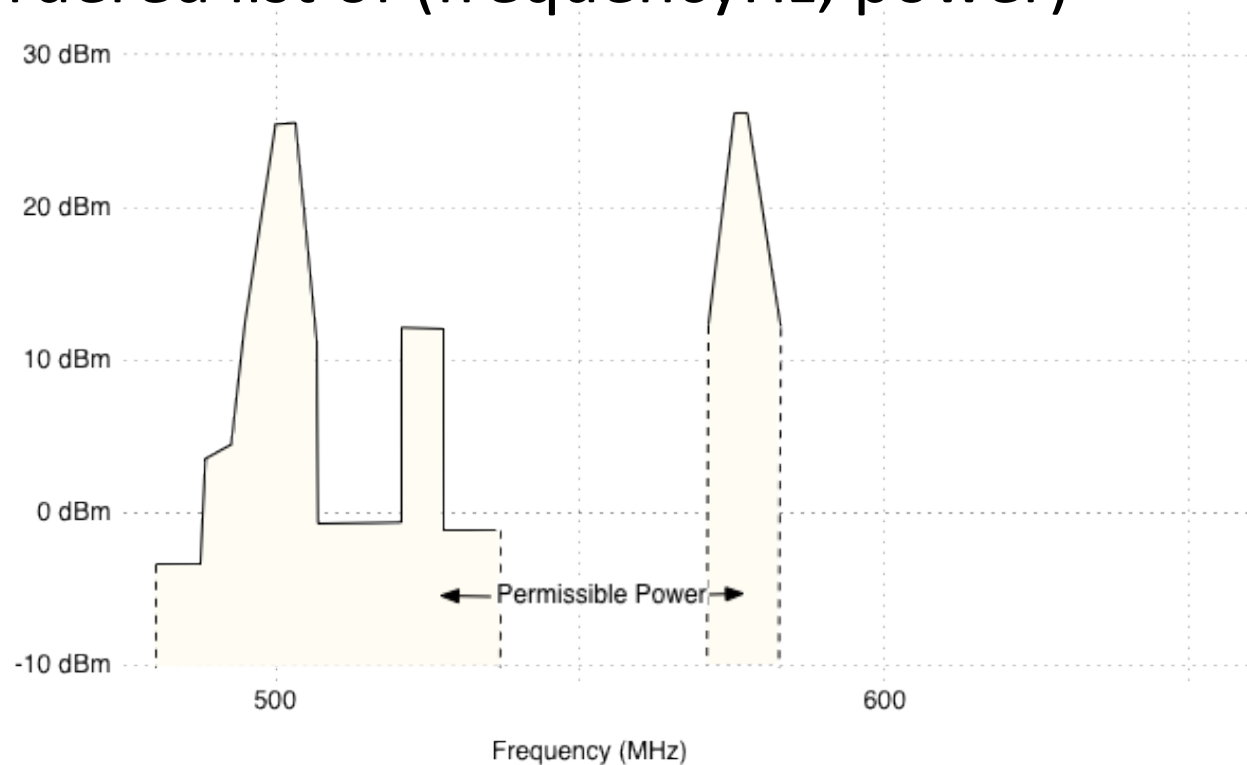
Open Item: Spectrum profile encoding

- Current encoding has “channelized” view
 - List of (startHz, stopHz, power)
 - No power specification of “unavailable” ranges



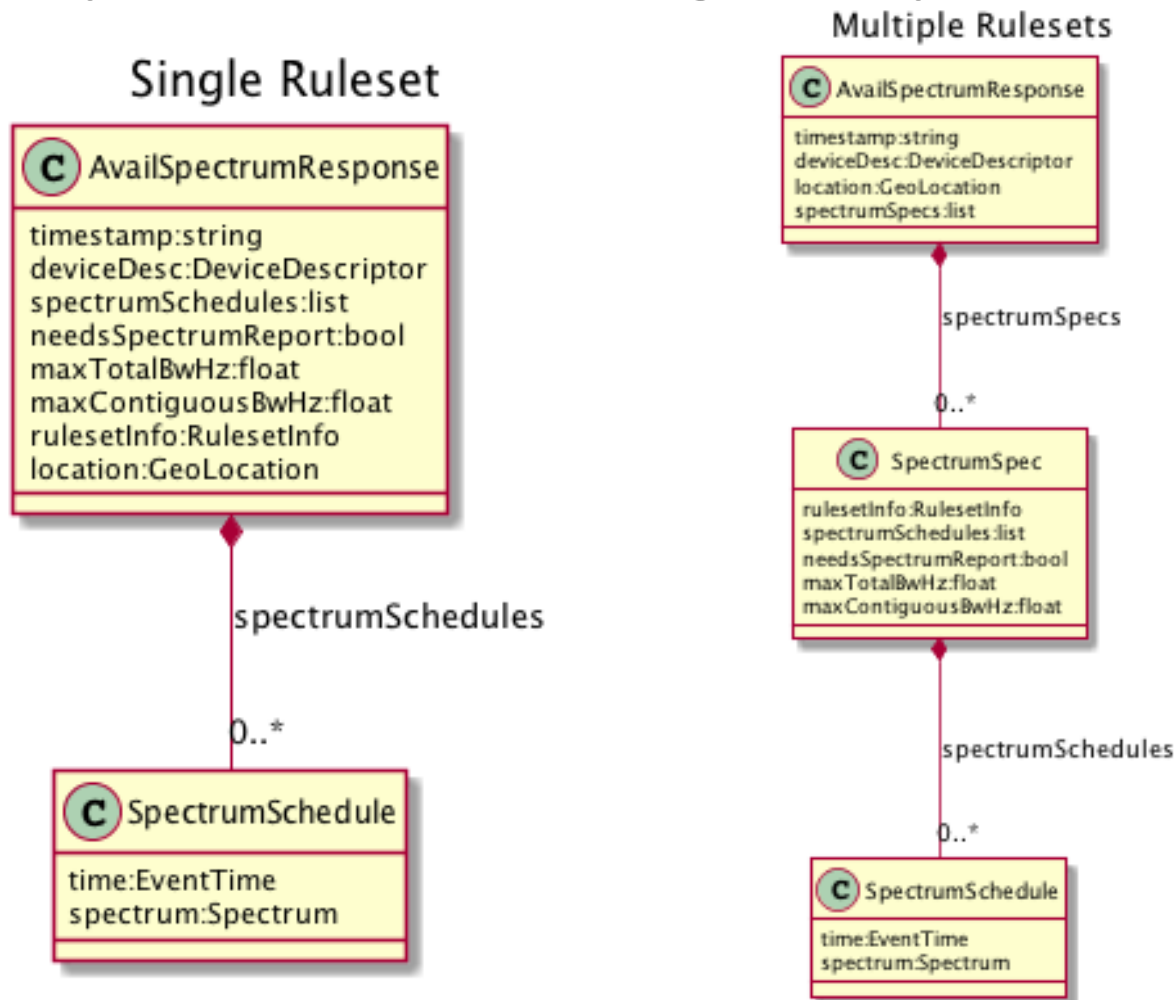
Open Item: Spectrum profile encoding

- Alternate encodings: piece-wise linear profile
 - 1: List of (startHz, startPower, stopHz, stopPower)
 - 2: Ordered list of (frequencyHz, power)



Open Item: Multiple Rulesets

- Multiple rulesets in single response?



Open Item: Spectrum-use Notification

- Should SPECTRUM_USE_NOTIFY be a pure notification?
 - I.e, no response message

Open Item: JSON-REST encoding

- Features
 - Uses HTTP headers to communicate versions, capabilities, cacheability
 - More naturally support web browsers
- Disadvantages
 - More tightly coupled to HTTP