Project	**IEEE 802.16 Broadband Wireless Access Working Group <http://ieee802.org/16>**
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Abstract	
Purpose	Adoption
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Contents

8.4.4.3 Frame duration codes

[802.16a-2003] Change formula in mesh column:

round((2*N*+4)/Ts)*Ts

8.4.8.1 Transmit power level control

[802.16a-2003] Change:

~~The transmitter shall support monotonic power level control of 45 dB (30 dB for license-exempt bands) minimum with a minimum step size of 1 dB and a relative accuracy of +/- 0.5 dB.~~ The transmitter shall support monotonic power level control of 30 dB minimum with a minimum step size of 1 a relative accuracy of +/- 0.5 dB for a SS and 10 dB minimum with a minimum step size of 1 dB and a relative accuracy of +/- 0.5 dB for a BS".

[802.16-2001] Insert:

11.4.1.10 ARQ Support

This field indicates the availability of ARQ and the maximum number of simultenous connections for which ARQ can be supported.

Type	Length	Value	Scope
5.21	1	0: No ARQ support capability 1-255: Maximum number of simultaneous connections for which ARQ can be supported.	REG-REQ REG-RSP

[802.16a-2003] Change 11.4.1.10.1:

11.4.1.10.1 ARQ ~~Support~~ Enable

~~This TLV indicates whether or not ARQ is available for the connection that is being setup. A value of 0 indicates the non-availability of ARQ support and a value 1 indicates otherwise. The DSA-REQ shall contain the request to use ARQ or not. The DSA-RSP message shall contain the acceptance or rejection of the request. ARQ shall be enabled for this connection only if both sides support it.~~

This TLV indicates whether or not ARQ enabling is requested for the connection that is being setup. A value of 0 indicates that ARQ is not requested and a value 1 indicates that ARQ is requested. The DSA-REQ shall contain the request to use ARQ or not. The DSA-RSP message shall contain the acceptance or rejection of the request. ARQ shall be enabled for this connection only if both sides report this TLV to be non-zero.

When a DSA-REQ is issued by the BS, the use of ARQ may be mandated for the requested connection using value 2. The SS shall either reject the connection or accept the connection with ARQ.

Type	Length	Value	Scope
[24/25].11	1	~~0 = ARQ Not Supported~~ ~~1 = ARQ Supported~~ 0 = ARQ Not Requested/Accepted 1 = ARQ Requested/Accepted 2 = ARQ Mandated (BS only in DSA-REQ)	DSA~~x~~-REQ DSA~~x~~-RSP

12. System Profiles

12.2 WirelessMAN-OFDM and WirelessHUMAN(-OFDM) System Profiles

This subclause defines system profiles for systems operating with the WirelessMAN-OFDM air interface and with the WirelessHUMAN interface where it uses the OFDM PHY.

A system profile consists of five components: a MAC profile, a PHY profile, a RF profile, a duplexing selection (FDD and/or TDD) and a power class. The defined PHY and MAC profiles are listed in Table 153.

Table 153—Profile Definitions

Identifier	Description
profM3	WirelessMAN-OFDM Basic packet PMP MAC profile
profM4	WirelessMAN-OFDM Basic packet Mesh MAC profile
profP3	WirelessMAN-OFDM 3.5 MHz channel basic PHY profile
profP4	WirelessMAN-OFDM 7 MHz channel basic PHY profile
profP5	WirelessHUMAN(-OFDM) 10 MHz channel basic PHY profile

The transmit power class profiles, as shown in Table 154, are based on the maximum mean transmit power $P_{Tx,max}$ using all non-guard carriers, for which the transmitter requirements as defined in 8.4.8 are met.

Table 154—Power Classes profiles

Identifier	Transmit power performance
profC1	$17 \le P_{Tx,\,max} < 20$ dBm
profC2	$20 \le P_{Tx,max} < 23$ dBm
profC3	$P_{Tx,max} \ge 23$ dBm

Using these conventions, a sampe system profile is shown in Table 155

Table 155—Sample system profile

Sample system profile
{
profM3
profP5
profR11
TDD
profC1
}

12.2.1 WirelessMAN-OFDM and WirelessHUMAN(-OFDM) MAC Profiles

This subclause defines MAC profiles for systems operating with the WirelessMAN-OFDM air interface and with the WirelessHUMAN interface where it uses the OFDM PHY.

12.2.1.1 ProfM3: Basic Packet PMP MAC System Profile

This profile specifies a set of capability requirements when a system is operating in the mandatory PMP mode. Table 156 lists the optional MAC features and designates whether they shall or may be implemented to comply with this profile.

Table 156—Optional feature requirements profM3

Optional Feature	Required?	Conditions/Notes
Packet convergence sublayer Payload header suppression Ipv4 Ethernet	Yes No Yes Yes	
ATM convergence sublayer Support of PVCs VC switched connections VP switched connections	No No No No	
Provisioned connections	No	
Classification of packets on incoming physical port	No	
Multicast polling groups Multicast polling	No	
CRC functionality	Yes	Elective per connection
Dynamic services	Yes	
Unsolicited grant service functionality	Yes	
Real-Time Polling services	No	
Best effort services	Yes	
Non-Real-Time Polling services	Yes	
TEK encryption algorithms: 3-DES EDE with 128-bit key (type 1) RSA with 1024-bit key	 No Yes	
Undecodable initial ranging feature	Conditional	Required for SS. Not required for BS.
ARQ	No	If used, a minimum of 8 simultaneous ARQ connections shall be support-able.
Mesh	No	if used, apply profM4
AAS	No	
DFS	Conditional	Required when intended for license exempt bands. Not required when intended for licensed bands.

12.2.1.1.1 Conventions for MAC Management Messages

The following rules shall be followed when reporting parameters in MAC Management messages:

— Service Class Names should not be used.
— No TLVs besides Error Encodings and HMAC Tuples shall be reported back in DSA-RSP and DSC-RSP messages.

— No TLVs besides HMAC Tuples shall be reported back in DSA-ACK messages.
— DSC-REQ messages shall not contain Request/Transmission Policy, Fixed vs. Variable Length SDU Indicator, SDU Size, ATM Switching, or Convergence Sublayer Specification TLVs.

12.2.1.1.2 MAC Management Message Parameter Transmission Order

TLVs within MAC Management messages shall be ordered as follows. Parameters for optional features shall occur after those listed for support of mandatory features. Features that are defined optional, but are mandated by the implemented Profile, if any, shall be ordered as optional. Both mandatory and optional TLVs shall subsequently be sequenced in order of increasing Type value. Parameters with defined default values should be omitted if the desired value coincides with the default one.

12.2.1.1.2 ProfM4: Basic Packet Mesh MAC System Profile

This profile specifies a set of capability requirements when a mesh enabled system is operating in the optional mesh mode. Table 157 lists the optional MAC features and designates whether they shall or may be implemented to comply with this profile.

Table 157—Optional feature requirements profM4

Optional Feature	Required?	Conditions/Notes
Packet convergence sublayer Payload header suppression Ipv4 Ethernet	Yes No Yes Yes	
ATM convergence sublayer Support of PVCs VC switched connections VP switched connections	No No No No	
Provisioned connections	No	
Classification of packets on incoming physical port	No	
Multicast polling groups Multicast polling	N/A	
CRC functionality	Yes	

Table 157—Optional feature requirements profM4 *(continued)*

Optional Feature	Required?	Conditions/Notes
Dynamic services	Yes	
Unsolicited grant service functionality	N/A	
Real-Time Polling services	N/A	
Best effort services	Yes	
Non-Real-Time Polling services	N/A	
TEK encryption algorithms: 3-DES EDE with 128-bit key (type 1) RSA with 1024-bit key	 No Yes	
Undecodable initial ranging feature	N/A	
ARQ	Yes	A minimum of 8 simultaneous ARQ connections shall be supportable
AAS	No	
DFS	Conditional	Required when intended for license exempt bands. Not required when intended for licensed bands.

— Support of ARQ functionality is mandatory as a capability, but may be turned on or off on a per packet basis. ARQ shall be used when the reliability bit in the Mesh CID is set to 1, and shall not be used otherwise. ARQ parameters shall be set to:

—ARQ Window Size = 64_{DEC}

—ARQ Retry Timeout = $\lceil 2 \cdot T_F \rceil_{\text{DEC}}$, with T_F the PHY dependent frame duration in μs.

—ARQ Fragment Lifetime = = $\lceil T_F/2 \rceil_{\text{DEC}}$, with T_F the PHY dependent frame duration in μs.

—ARQ RX Purge Time Timeout = $\lceil 2 \cdot T_F \rceil_{\text{DEC}}$, with T_F the PHY dependent frame duration in μs.

—ARQ Sync Loss Timeout = 0

—ARQ Deliver in Order = 0

12.2.1.2.1 MAC Management message applicability

For a mesh-enabled system, the messages below and the corresponding functionality are always mandatory to implement:

MSH-NCFG
MSH-NENT
MSH-DSCH
MSH-CSCH
MSH-CSCF
REG-REQ
REG-RSP
PKM-REQ
PKM-RSP
SBC-REQ
SBC-RSP
TFTP-CPLT
TFTP-RSP
RES-CMD

For a mesh enabled system, the following messages and the corresponding functionality are mandatory/ optional whenever they are correspondingly optional/mandatory for a PMP system:

ARQ-Feedback

When operating in the mesh mode, the messages below and the corresponding functionality are not used (they are however implemented to support the mandatory PMP mode).

DL-MAP
DCD
DSA-ACK
DSA-REQ
DSA-RSP
DSC-ACK
DSC-REQ
DSC-RSP
DSD-RSP
DSX-RVD
UCD
UL-MAP
CLK-CMP
DBPC-REQ
DBPC-RSP
DREG-CMD
MCA-REQ
MCA-RSP
RNG-REQ
RNG-RSP

Generally, the following procedures are different for a mesh node and a PMP node:

Synchronization
Network entry
Scheduling

12.2.1.2.2 MAC Management Message Parameter Transmission Order

TLVs within MAC Management messages shall be ordered as follows. Parameters for optional features shall occur after those listed for support of mandatory features. Features that are defined optional, but are mandated by the implemented Profile, if any, shall be ordered as optional. Both mandatory and optional TLVs shall subsequently be sequenced in order of increasing Type value. Parameters with defined default values should be omitted if the desired value coincides with the default one.

12.2.2 WirelessMAN-OFDM Physical Layer Profiles

This subclause defines PHY profiles for systems operating with the WirelessMAN-OFDM air interface.

12.2.2.1 ProfP3: WirelessMAN-OFDM PHY profile for 3.5 MHz channelization

Mandatory features:

— Licensed band usage only
— Channel bandwidth BW = 3.5 MHz
— BS shall select Frame duration from code set PMP:{4,7,12}, Mesh:{8}. SSs shall be capable of operating with any of the Frame Durations indicated in the code set.

Table 158 lists the optional PHY features and designates whether they shall or may be implemented to comply with this profile

Table 158—Optional feature requirements profP3

Optional Feature	Required?	Conditions/Notes
BTC	No	
CTC	No	
64-QAM	No	
sub-channelization	No	
STC	No	
Focused contention BW requesting	No	
T_g/T_b	Conditional	BS shall be capable of using at least one value. SS shall be capable of using entire set

Systems implementing profP3 shall meet the minimum performance requirements listed in Table 159:

Table 159—Minimum Performance requirements for profP3

Capability	Minimum Performance
T_b	= 64 μ s
Tx Dynamic range SS BS	 ≥ 30 dB ≥ 10 dB
Tx Power Level minimum adjustment step	≤ 1 dB
Tx Power Level minimum relative step accuracy	≤ +/- 0.5 dB
Tx Spectral flatness Absolute difference between adjacent carriers: Deviation of average energy in each carrier from the measured energy averaged over all 200 active tones: Carriers -50 to -1 and +1 to +50: Carriers -100 to -50 and +50 to +100:	 ≤ 0.06 dB ≤ +/-2dB ≤ +2/-4dB
Spectral mask (OOB)	Local regulation
Tx relative constellation error: QPSK-1/2 QPSK-3/4 16QAM-1/2 16QAM-3/4 64QAM-2/3 (if 64-QAM supported) 64QAM-3/4 (if 64-QAM supported)	 ≤ -19.4 dB ≤ -21.2 dB ≤ -26.4 dB ≤ -28.2 dB ≤ -32.7 dB ≤ -34.4 dB
Rx linearity IIP3	≥ -10 dBm
Rx max. input level on-channel reception tolerance	≥ -30 dBm
Rx max. input level on-channel damage tolerance	≥ 0 dBm
BER performance threshold, BER=10^{-6} QPSK-1/2 QPSK-3/4 16QAM-1/2 16QAM-3/4 64QAM-2/3 (if 64-QAM supported) 64QAM-3/4 (if 64-QAM supported)	 ≤ -87 dBm ≤ -85 dBm ≤ -80 dBm ≤ -78 dBm ≤ -74 dBm ≤ -72 dBm
1st adjacent channel rejection at BER=10^{-6} for 3 dB degradation C/I 16QAM-3/4 64QAM-3/4 (if 64-QAM supported)	 ≥ 11 dB ≥ 4 dB
2nd adjacent channel rejection at BER=10^{-6} for 3 dB degradation C/I 16QAM-3/4 64QAM-3/4 (if 64-QAM supported)	 ≥ 30 dB ≥ 23 dB

Table 159—Minimum Performance requirements for profP3 *(continued)*

Capability	Minimum Performance
TTG and RTG	≤ 5 μs
Reference frequency tolerance BS SS to BS synchronization tolerance Mesh system Mesh to Mesh synchronization tolerance	 ≤ +/- 4 ppm ≤ 312.5 Hz ≤ +/- 20 ppm ≤ 468.75 Hz
Reference time tolerance	≤ $(T_g/T_b)/2$ μs

12.2.2.2 ProfP4: WirelessMAN-OFDM PHY profile for 7 MHz channelization

Mandatory features:

— Licensed band usage only
— Channel bandwidth BW = 7 MHz
— BS shall select Frame duration from code set PMP:{4,7,12}, Mesh:{3}. SSs shall be capable of operating with any of the Frame Durations indicated in the code set.

Table 158 lists the optional PHY features and designates whether they shall or may be implemented to comply with this profile

Table 160—Optional feature requirements profP4

Optional Feature	Required?	Conditions/Notes
BTC	No	
CTC	No	
64-QAM	No	
sub-channelization	No	
STC	No	
Focused contention BW requesting	No	
T_g/T_b	Conditional	BS shall be capable of using at least one value. SS shall be capable of using entire set

Systems implementing profP4 shall meet the minimum performance requirements listed in Table 161:

Table 161—Minimum Performance requirements for profP4

Capability	Minimum Performance
T_b	= 32 μ s
Tx Dynamic range SS BS	 ≥ 30 dB ≥ 10 dB
Tx Power Level minimum adjustment step	≤ 1 dB
Tx Power Level minimum relative step accuracy	≤ +/- 0.5 dB
Tx Spectral flatness Absolute difference between adjacent carriers: Deviation of average energy in each carrier from the measured energy averaged over all 200 active tones: Carriers -50 to -1 and +1 to +50: Carriers -100 to -50 and +50 to +100:	 ≤ 0.06 dB ≤ +/-2dB ≤ +2/-4dB
Spectral mask (OOB)	Local regulation
Tx relative constellation error: QPSK-1/2 QPSK-3/4 16QAM-1/2 16QAM-3/4 64QAM-2/3 (if 64-QAM supported) 64QAM-3/4 (if 64-QAM supported)	 ≤ -19.4 dB ≤ -21.2 dB ≤ -26.4 dB ≤ -28.2 dB ≤ -32.7 dB ≤ -34.4 dB
Rx linearity IIP3	≥ -10 dBm
Rx max. input level on-channel reception tolerance	≥ -30 dBm
Rx max. input level on-channel damage tolerance	≥ 0 dBm
BER performance threshold, BER=10^{-6} QPSK-1/2 QPSK-3/4 16QAM-1/2 16QAM-3/4 64QAM-2/3 (if 64-QAM supported) 64QAM-3/4 (if 64-QAM supported)	 ≤ -84 dBm ≤ -82 dBm ≤ -77 dBm ≤ -75 dBm ≤ -71 dBm ≤ -69 dBm
1st adjacent channel rejection at BER=10^{-6} for 3 dB degradation C/I 16QAM-3/4 64QAM-3/4 (if 64-QAM supported)	 ≥ 11 dB ≥ 4 dB
2nd adjacent channel rejection at BER=10^{-6} for 3 dB degradation C/I 16QAM-3/4 64QAM-3/4 (if 64-QAM supported)	 ≥ 30 dB ≥ 23 dB

Table 161—Minimum Performance requirements for profP4 *(continued)*

Capability	Minimum Performance
TTG and RTG	≤ 5 μs
Reference frequency tolerance BS SS to BS synchronization tolerance Mesh system Mesh to Mesh synchronization tolerance	 ≤ +/- 4 ppm ≤ 625 Hz ≤ +/- 20 ppm ≤ 937.5 Hz
Reference time tolerance	≤ $(T_g/T_b)/2$ μs

12.2.3 WirelessHUMAN(-OFDM) Physical Layer Profiles

This subclause defines OFDM PHY profiles for systems operating with the WirelessHUMAN air interface.

12.2.3.1 profP5: WirelessHUMAN PHY profile for 10 MHz channelization

Mandatory features:

— License-exempt band usage only
— Channel bandwidth *BW* = 10 MHz
— TDD operation
— BS shall select Frame duration from code set PMP:{4,7,12}, Mesh:{3}. SSs shall be capable of operating with any of the Frame Durations indicated in the code set.
— DFS capability
  — Ability to detect primary users with received signal strength in excess of -64 dBm
  — Ability to switch channel within 300 μs

Table 158 lists the optional PHY features and designates whether they shall or may be implemented to comply with this profile

Table 162—Optional feature requirements profP5

Optional Feature	Required?	Conditions/Notes
BTC	No	
CTC	No	
64-QAM	No	
sub-channelization	No	
STC	No	
Focused contention BW requesting	No	
T_g/T_b	Conditional	BS shall be capable of using at least one value. SS shall be capable of using entire set

Systems implementing profP5 shall meet the minimum performance requirements listed in Table 163:

Table 163—Minimum Performance requirements for profP5

Capability	Minimum Performance
T_b	= 22.4 μ s
Tx Dynamic range SS BS	 ≥ 30 dB ≥ 10 dB
Tx Power Level minimum adjustment step	≤ 1 dB
Tx Power Level minimum relative step accuracy	≤ +/- 0.5 dB
Tx Spectral flatness Absolute difference between adjacent carriers: Deviation of average energy in each carrier from the measured energy averaged over all 200 active tones: Carriers -50 to -1 and +1 to +50: Carriers -100 to -50 and +50 to +100:	 ≤ 0.06 dB ≤ +/-2dB ≤ +2/-4dB
Spectral mask (IB): f_0 +/- 0 MHz f_0 +/- 4.25 MHz f_0 +/- 5.25 MHz f_0 +/- 9.75 MHz f_0 +/- 14.25 MHz	Linear interpolation between points: 0 dBr 0 dBr -27 dBr -32 dBr -50 dBr
Spectral mask (OOB)	Local regulation
Tx relative constellation error: QPSK-1/2 QPSK-3/4 16QAM-1/2 16QAM-3/4 64QAM-2/3 (if 64-QAM supported) 64QAM-3/4 (if 64-QAM supported)	 ≤ -19.4 dB ≤ -21.2 dB ≤ -26.4 dB ≤ -28.2 dB ≤ -32.7 dB ≤ -34.4 dB
Rx linearity IIP3	≥ -10 dBm
Rx max. input level on-channel reception tolerance	≥ -30 dBm
Rx max. input level on-channel damage tolerance	≥ 0 dBm

Table 163—Minimum Performance requirements for profP5 *(continued)*

Capability	Minimum Performance
BER performance threshold, BER=10^{-6}	
QPSK-1/2	≤ -83 dBm
QPSK-3/4	≤ -81 dBm
16QAM-1/2	≤ -76 dBm
16QAM-3/4	≤ -74 dBm
64QAM-2/3 (if 64-QAM supported)	≤ -69 dBm
64QAM-3/4 (if 64-QAM supported)	≤ -68 dBm
1st adjacent channel rejection at BER=10^{-6} for 3 dB degradation C/I	
16QAM-3/4	≥ 11 dB
64QAM-3/4 (if 64-QAM supported)	≥ 4 dB
2nd adjacent channel rejection at BER=10^{-6} for 3 dB degradation C/I	
16QAM-3/4	≥ 30 dB
64QAM-3/4 (if 64-QAM supported)	≥ 23 dB
TTG and RTG	≤ 5 μs
Reference frequency tolerance	
BS	≤ +/- 4 ppm
SS to BS synchronization tolerance	≤ 892.5 Hz
Mesh system	≤ +/- 20 ppm
Mesh to Mesh synchronization tolerance	≤ 1339 Hz
Reference time tolerance	≤ $(T_g/T_b)/2$ μs

12.2.4 WirelessMAN-OFDM RF profiles

12.2.4.1 RF profiles for 3.5 MHz channelization

12.2.4.1.1 profR1

Mandatory features:

— RF channels: (UL for FDD) : $2524.75 + n \cdot 3.5$ MHz, $\forall n \in \{0, 1, \ldots, 19\}$
(DL for FDD) : $2598.75 + n \cdot 3.5$ MHz, $\forall n \in \{0, 1, \ldots, 19\}$
Using FDD, *n* shall be identical for UL and DL

12.2.4.1.2 profR2

Mandatory features:

— RF channels: (UL for FDD) : $3411.75 + n \cdot 3.5$ MHz, $\forall n \in \{0, 1, \ldots, 9\}$
(DL for FDD) : $3461.75 + n \cdot 3.5$ MHz, $\forall n \in \{0, 1, \ldots, 9\}$
Using FDD, *n* shall be identical for UL and DL

12.2.4.1.3 profR3

Mandatory features:

— RF channels: (UL for FDD) : $3501.75 + n \cdot 3.5$ MHz, $\forall n \in \{0, 1, \ldots, 13\}$
(DL for FDD) : $3551.75 + n \cdot 3.5$ MHz, $\forall n \in \{0, 1, \ldots, 13\}$
Using FDD, n shall be identical for UL and DL

12.2.4.1.4 profR4

Mandatory features:

— RF channels: (UL for FDD) : $3601.75 + n \cdot 3.5$ MHz, $\forall n \in \{0, 1, \ldots, 13\}$
(DL for FDD) : $3651.75 + n \cdot 3.5$ MHz, $\forall n \in \{0, 1, \ldots, 13\}$
Using FDD, n shall be identical for UL and DL

12.2.4.1.5 profR5

Mandatory features:

— RF channels: (UL for FDD) : $3701.75 + n \cdot 3.5$ MHz, $\forall n \in \{0, 1, \ldots, 13\}$
(DL for FDD) : $3751.75 + n \cdot 3.5$ MHz, $\forall n \in \{0, 1, \ldots, 13\}$
Using FDD, n shall be identical for UL and DL

12.2.4.2 RF profiles for 7 MHz channelization

12.2.4.2.1 profR6

Mandatory features:

— RF channels: (UL for FDD) : $2526.5 + n \cdot 7$ MHz, $\forall n \in \{0, 1, \ldots, 9\}$
(DL for FDD) : $2600.5 + n \cdot 7$ MHz, $\forall n \in \{0, 1, \ldots, 9\}$
Using FDD, n shall be identical for UL and DL

12.2.4.2.2 profR7

Mandatory features:

— RF channels: (UL for FDD) : $3413.5 + n \cdot 7$ MHz, $\forall n \in \{0, 1, \ldots, 4\}$
(DL for FDD) : $3463.5 + n \cdot 7$ MHz, $\forall n \in \{0, 1, \ldots, 4\}$
Using FDD, n shall be identical for UL and DL

12.2.4.2.3 profR8

Mandatory features:

— RF channels: (UL for FDD) : $3503.5 + n \cdot 7$ MHz, $\forall n \in \{0, 1, \ldots, 6\}$
(DL for FDD) : $3553.5 + n \cdot 7$ MHz, $\forall n \in \{0, 1, \ldots, 6\}$
Using FDD, n shall be identical for UL and DL

12.2.4.2.4 profR9

Mandatory features:

— RF channels: (UL for FDD) : $3603.5 + n \cdot 7$ MHz, $\forall n \in \{0, 1, \ldots, 6\}$
(DL for FDD) : $3653.5 + n \cdot 7$ MHz, $\forall n \in \{0, 1, \ldots, 6\}$
Using FDD, n shall be identical for UL and DL

12.2.4.2.5 profR10

Mandatory features:

— RF channels: (UL for FDD) : $3703.5 + n \cdot 7$ MHz, $\forall n \in \{0, 1, \ldots, 6\}$
(DL for FDD) : $3753.5 + n \cdot 7$ MHz, $\forall n \in \{0, 1, \ldots, 6\}$
Using FDD, n shall be identical for UL and DL

12.2.4.3 RF profiles for 10 MHz channelization

12.2.4.3.1 profR11

Mandatory features:

— RF channels: : $5000 + n \cdot 10$ MHz, $\forall n \in \{55, 57, 59, 61, 63, 65, 67\}$
— Spectral mask: See 8.6.2

12.2.4.3.2 profR12

Mandatory features:

— RF channels: : $5000 + n \cdot 10$ MHz, $\forall n \in \{148, 150, 152, 154, 156, 158, 160, 162, 164, 166\}$
— Spectral mask: See 8.6.2

12.2.4.3.3 profR13

Mandatory features:

— RF channels: : $5000 + n \cdot 10$ MHz, $\forall n \in \{147, 149, 151, 153, 155, 157, 159, 161, 163, 165, 167, 169\}$
— Spectral mask: See 8.6.2