

2020

MIOTY device classes and features

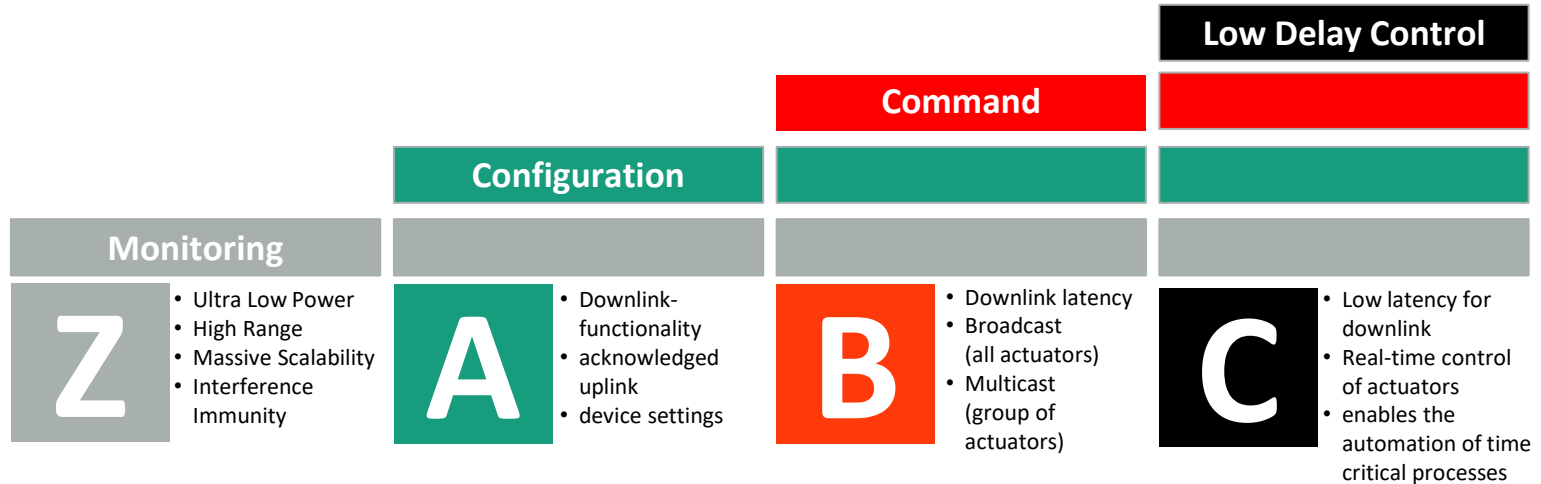
Device Classes Z, A, B, and C overview

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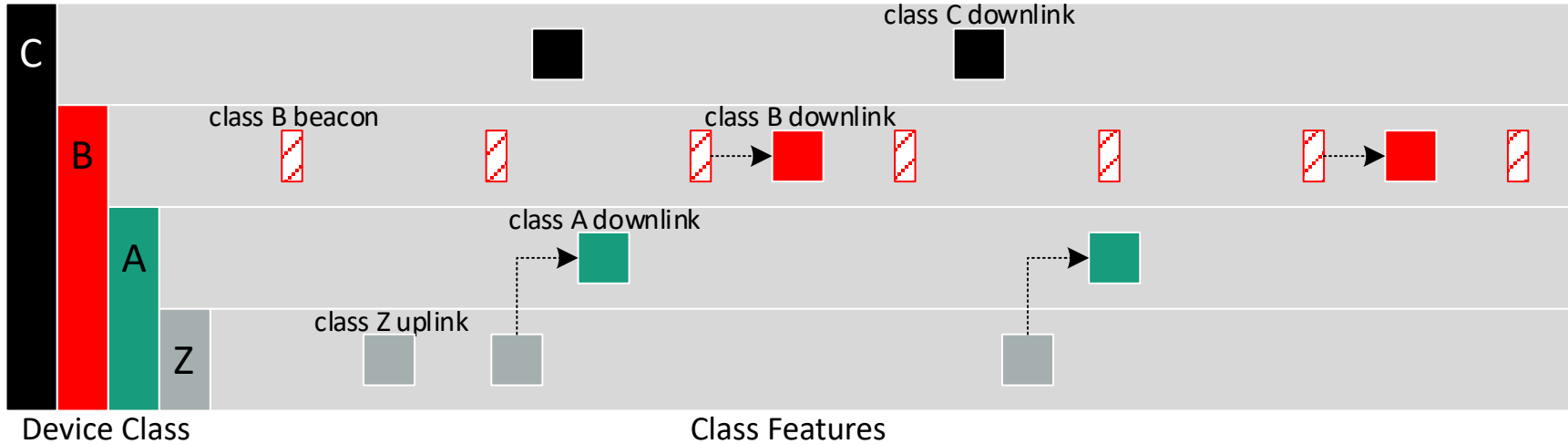
Device Classes

The capabilities are grouped into four classes



MIOTY

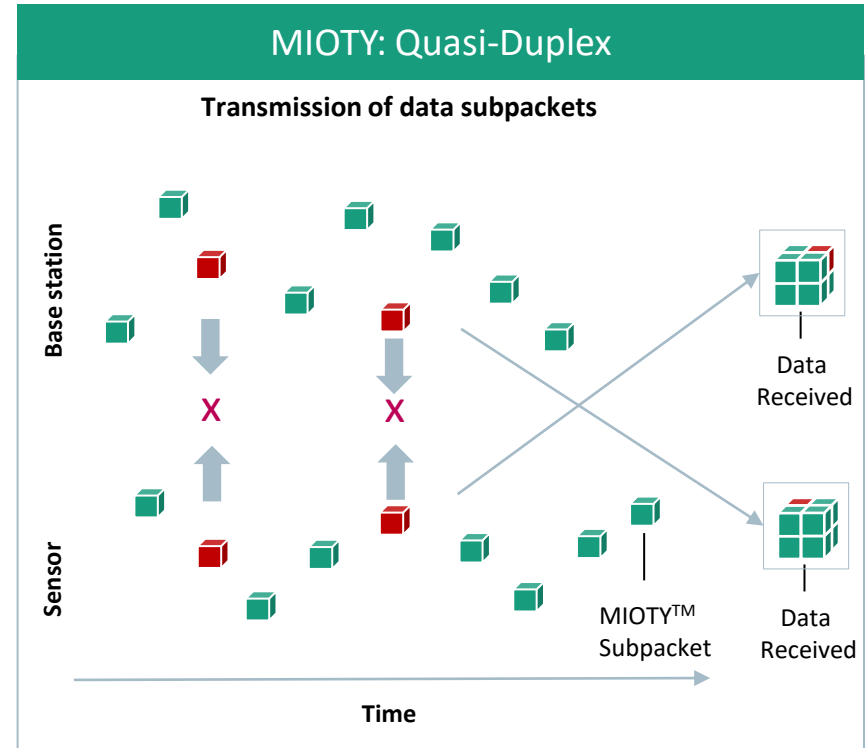
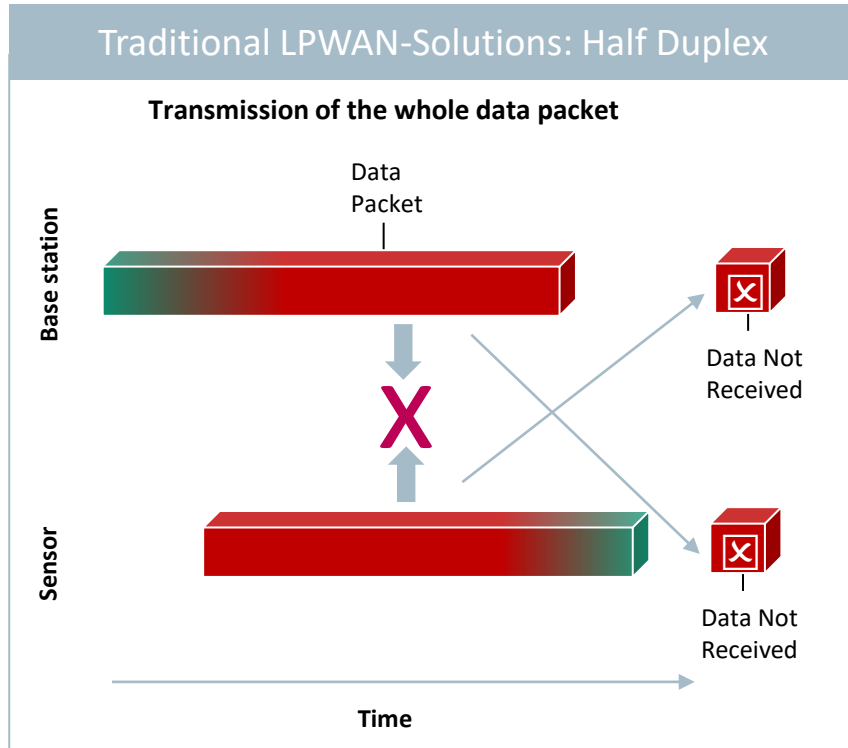
Overview Device Classes and Class Features



- Higher Device Classes includes all features of the lower Device Classes

mioty Next Generation

Improved Duplex Operation as baseline for new capabilities



MIOTY – Class Z

Uplink on-air time / transmission rates



NOTE: Class Z uplink is also used in Class A, Class B, and Class C devices.

Uplink transmission rate for end point duty cycle of 1%		
Message size	On-air time	No of messages per hour
10 Byte	363 ms	99
50 Byte	968 ms	37
200 Byte	3,236 ms	11

Uplink Capacity for PER < 1%			
Traffic Model	10 Byte every 15 min	50 Byte every hour	200 Byte every 2 hour
No of devices per BS	> 34,000	> 45,000	> 29,000

equals 3.3 M messages per day @ 10 byte

MIOTY – Class Z

Payload Size and Latency

Core Frame duration standard pattern for patterns 1...8: 3.67s, 3.67s, 3.63s, 3.69s, 3.67s, 3.69s, 3.66s , 3.69s

Core Frame duration low-delay pattern: 0.8s

The core frame includes

- addressing
- network authentication (this includes checksum)
- up to 10 user bytes

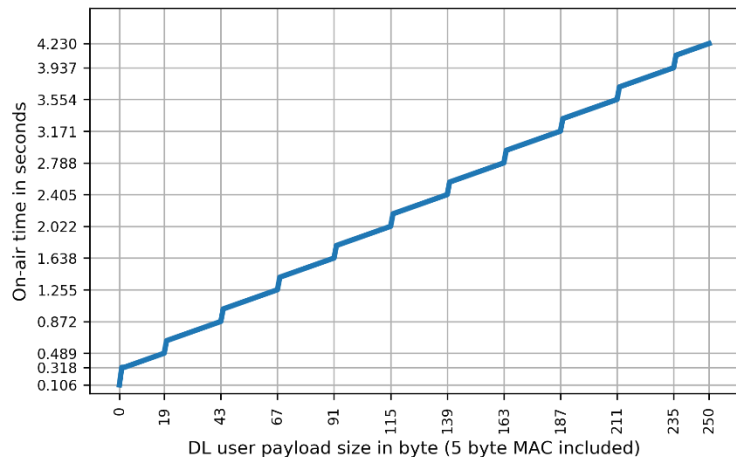
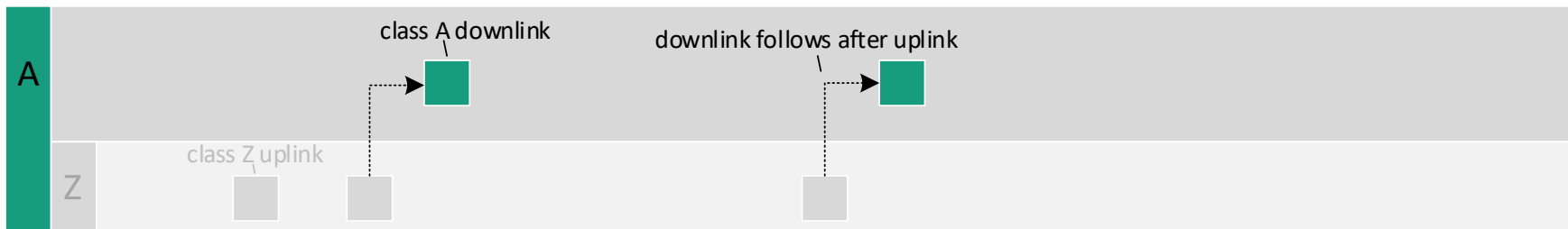
Additional time per each additional user byte for standard pattern: minimum 0.142s, average 0.168s, max 0.195s

Additional time per each additional user byte for low-delay pattern: minimum 0.028s, average 0.055s, max 0.081s

$$t_{tx} = t_{coreFrame} + \max(\{nUserByte - 10, 0\}) \cdot t_{additional}$$

MIOTY – Class A

Downlink on-air time / transmission rates



Downlink transmission rate
for base station duty cycle of 10%

Message size	On-air time	No of messages per day
ACK only	106 ms	> 80,000
ACK + 10 Byte Data	398 ms	> 20,000
ACK + 50 Byte Data	1,059 ms	> 8,000

MIOTY – Class B and C

- more Information on Class B/C is available for mioty alliance members

Contact

MIOTY™ - The Future Proven technology for the Industrial IOT

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