



Operator view on 5G NR

SK telecom

1. Background and Status

5G spectrum auction in June 2018 & 5G service launching in December 2018

- Republic of Korea held its first 5G spectrum auction in the 3.5GHz and 28GHz bands in June 2018. SK telecom and KT each acquired 100MHz bandwidth in the 3.5GHz band, the maximum amount allowed per operator, while LG Uplus won 80MHz bandwidth. In the 28GHz band, each operator won 800MHz bandwidth.
- SK telecom, KT and LG Uplus turned on 5G networks at midnight on the 1st of December 2018. So far, 5G commercial services have been available for B2B using mobile routers.

Initial 5G deployment and commercialization with NSA-NR

- SK telecom has already started deploying 5G infrastructure. Initial deployments are taking place in major cities through spectrum in the 3.5 GHz band.
- **SK telecom has considered starting 5G commercialization** with NSA-NR specification based on Option 3, and then migrating it into SA-NR based on Option 2.
- **SK telecom has considered deploying 28GHz infrastructure in 2019.**

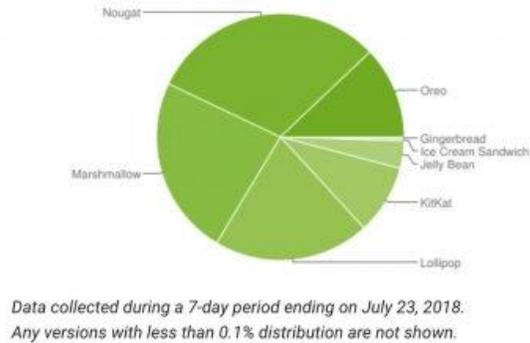
We see non-backward compatibility issues in multiple drops of Rel.15

- NSA NR has still non-backward compatible Change Requests in December, 2018.

1. Background and Status

Lots of users do not care about updating new UE firmware

- There are many users who do not want to update to a new firmware.



Version	Codename	API	Distribution
2.3.3 - 2.3.7	Gingerbread	10	0.2%
4.0.3 - 4.0.4	Ice Cream Sandwich	15	0.3%
4.1.x	Jelly Bean	16	1.2%
4.2.x		17	1.9%
4.3		18	0.5%
4.4	KitKat	19	9.1%
5.0	Lollipop	21	4.2%
5.1		22	16.2%
6.0	Marshmallow	23	23.5%
7.0	Nougat	24	21.2%
7.1		25	9.6%
8.0	Oreo	26	10.1%
8.1		27	2.0%

[Source : Google]

From the perspective of operator, non-backward compatibility would make a major confusion in the market

- In order to overcome non-backward compatibility issue, UE firmware should be upgraded but not a few users upgrade firmware.
- Users who have not updated UE firmware might experience communication failure issue

2. Proposal

Proposal 1: NR NSA should support fully backward compatibility from December 2018 version of ASN.1.

- Future versions should support complete backward compatibility to December 2018 version assumed as the baseline for 5G commercial network without any backward compatibility issue.

Proposal 2: NR-NR DC_(synchronous) shall be completed by March 2019 in the late drop

- It is also required to complete NR-NR dual connectivity at least before/in the late drop of Rel. 15 NR specification because we see various SA-NR deployment scenarios