**3GPP TSG-RAN Meeting #90e RP-20xxxx**

**Electronic Meeting, Dec 7-11, 2020**

**Agenda item:** 9.1.4

**Source:** China Unicom (Moderator)

**Title:** Summary for Email discussion on [90E][15][HP\_FDD]

**Document for:** Discussion

# Introduction

This document is a summary of the following email discussion,

*Goal: Generate an agreeable SID*

*Input contributions covered: 2284, 2285*

*Moderator: Basaier Jialade*

**Final deadline for technical comments**: 12:29h UTC 10th December

# Discussion

**RP-202284**

Title: **New SID: Study on high power UE (power class 2) for one NR FDD band**

Agenda Item: 9.1.4

For: Approval

Source: China Unicom

SI Objectives

The objectives of the SID are as follows:

1. Study the applicable scheme(s) for new power class 2 UE for one NR FDD band to comply with the SAR limits with 26dBm UE Tx power, the example band for this study is NR band n1.
2. Study interference issues (e.g. self-desense, cross device coexistence…).
3. Study the possible UE implementations, e.g. RF front-end capability, UE architectures, etc., in achieving 26dBm in FDD bands.

Companies are encouraged to provide their views on the objectives.

2.1 Initial Email Discussion

1. Comments about the objectives of the SID:

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| **Objective 1** | |
| Company Name | Comments |
| Apple | There is no duty cycle concept in FDD bands. P-MPR would limit the UE maximum output power to no more than 23 dBm to fulfill the SAR requirement. |

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| **Objective 2** | |
| Company Name | Comments |
| Apple | In addition to SAR issue, the duplexer power handling capability also needs to be considered. Redesign of duplexer may be needed to handle higher transmission power and provide better isolation to Rx band to prevent further REFSENS degradation. |

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| **Objective 3** | |
| Company Name | Comments |
| T-Mobile USA | We have a fundamental question about the motivation for this WI. With TDD the duty cycle is limited to less than 100%, so it is obvious that there is benefit for transmitting higher power, and SAR requirements can be met due to the duty cycle. With FDD it is not clear why there would be a benefit for PC2. For instance, if UE 1 is assigned 1 PRB with 100% duty cycle and is limited to PC3, and UE 2 is assigned 2 PRBs with 50% duty cycle and can transmit at PC2, the PSD would be the same in both cases, so the throughput should be the same. We know there were simulation results in the motivation paper, but we’d like to understand the theoretical benefit, especially given the workload in RAN4. It would be helpful if we could have an explanation of why there should be improvement with PC2 with 50% duty cycle vs. PC3 with 100% duty cycle. Intuitively it seems like an even trade. |
| Apple | The SAR issue needs to be resolved first before we can discuss the possible UE implementation.  We also have the same question as raised by T-Mobile USA on why the PC2 throughput would be better between the two operation scenarios as exemplified. |

2. Are there any other objectives to be added to the SID?

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| Company Name | Comments |
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3. The target completion date is RAN#93 (3 quarters), any comments on the timeline?

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| Company Name | Comments |
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# Summary and final proposal