CTIA Certification Program Working Group
Liaison Statement

To	CCSA TC9 WG1
CC	3GPP RAN4
Source	CTIA OTA CA Task Force
Subject	LS Response to "Liaison Statement on CCSA progress on NR FR1 OTA"
Date	20 December, 2019

1. Introduction

The CTIA OTA Working Group received the "Liaison Statement on CCSA progress on NR FR1 OTA" [1]. The CTIA OTA Working Group then forwarded the LS to the CTIA OTA CA Task Force which is actively developing the CTIA test methodology for FR1 EN-DC. The CTIA OTA CA Task Force would like to thank CCSA for providing this LS. The CTIA OTA CA Task Force would like to take this opportunity to provide CTIA's progress on this topic and provide additional input.

2. Discussion

In December, 2019, the CTIA OTA Working Group published the *CTIA Test Plan for Wireless Device Over-the-Air Performance v3.9* [2] which can be found at https://testplans.ctia.org/. This version of the CTIA test plan includes informative sections for the measurement of FR1 SA single carrier TRP and C-TIS. The CTIA FR1 SA single carrier TRP and C-TIS test procedures are consistent with the CTIA 3G and 4G test procedures for TRP and C-TIS, e.g.:

- The FR1 SA single carrier TRP and C-TIS test procedures are underpinned by the 3GPP TS 38.521-1 [3] UE Maximum Output Power and Reference Sensitivity test procedures, respectively.
- FR1 SA single carrier TRP and C-TIS is evaluated across the given band at the low, mid, and high channels.

Currently, the CTIA OTA CA Task Force is developing TRP and C-TIS test procedures for FR1 EN-DC. Current plans call for these test procedures to use the following approaches:

- The initial test plan will focus on FR1 EN-DC combinations with 1 CC LTE and 1 CC NR.
- Test channels will follow the same approach as that used by CTIA for LTE CA. Both the LTE and NR test channels are defined for the given EN-DC combination.
- TRP will be evaluated for each RAT with the UE at maximum power for the RAT under test while the output power for the other RAT is minimized (i.e. less than or equal to 10 dBm) but still ensuring error-free operation on the other RAT. This approach was chosen to ensure the UE is capable of reaching maximum output power on each RAT when the antenna is tuned for the given EN-DC combination.

- C-TIS for FR1 EN-DC combinations where the UE supports simultaneous transmission on both LTE and NR will be evaluated at 50% of full power across the RAT's. For EN-DC combinations with known self-desense issues (due to harmonic and/or IM self-interference), an additional test point will be added which maximizes the impact of the self-desense on the victim band.
- C-TIS for FR1 EN-DC combinations where the UE only supports single uplink transmission will be evaluated with uplink transmissions-only on the RAT under test.

The CTIA OTA CA Task Force is targeting the second quarter of 2020 for an initial release of the FR1 EN-DC test plan described above. This test plan is planned to evolve over time to include all CTIA FR1 test procedures, e.g. FR1 EN-DC, FR1 SA single carrier, and FR1 SA CA.

3. Actions

None

Contact Info

- Andrew Youtz (Verizon Wireless), CTIA OTA CA Task Force Chair (Andrew.Youtz@VerizonWireless.com)
- David Ott (Qualcomm), CTIA OTA CA Task Force Secretary (dott@qti.qualcomm.com)
- Ronald Borsato (PCTEST Engineering Lab), CTIA OTA Working Group Co-Chair (ron.borsato@pctest.com)
- Scott Prather (AT&T), CTIA OTA Working Group Co-Chair (scott.prather@att.com)

Date of Next CTIA OTA CA Task Force Meeting:

10 February 2020, Teleconference

References:

[1] *Liaison Statement on CCSA progress on NR FR1 OTA*, CCSA TC9 WG1.

[2] *CTIA Test Plan for Wireless Device Over-the-Air Performance*, Version 3.9, November 2019.

[3] 3GPP TS 38.521-1, *User Equipment (UE) conformance specification; Radio transmission and reception; Part 1: Range 1 Standalone*.