



GCF Conformance Agreement Group CAG#51
Washington DC, USA. 25-26 July 2017

Liaison Statement

For submission to: 3GPP RAN5

Cc: PTCRB PVG

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Subject: Reply LS to 3GPP RAN5 on priority list for test case optimisation.

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Summary of Content:

At GCF's CAG#50 meeting, an LS from 3GPP RAN5 (R5-171523) was presented requesting that CAG provide a priority short list of those LTE RF/RRM test cases which would provide the most benefit, if test time execution could be reduced to RAN5.

Post meeting; CAG has compiled a list of test cases and provide this within this LS for consideration.

Actions

1. See proposal A
2. See proposal B

Dates of Next Meeting

CAG#52: Venice, Italy. 24-25 October, 2017

CAG#53: Changi City, Singapore. 16-17 January, 2018

Proposal A ...

Test Case 7.6.2A.x in TS36.521-1 has two test options; Annex G.2 (short) and Annex G.2A (long).

Some of the out of band blocking test cases in v14.2.0 use the following statistical measurements to achieve proper verdicts:

8. Measure the average throughput of SCC for duration sufficient to achieve statistical significance according to Annex G.2.

This annex requires measurements using the following statistical verdicts ...

G.2.5 Pass fail decision rules

The pass fail decision rules apply for a single test, comprising one component in the test vector. The over all Pass /Fail conditions are defined in clause G.2.1.5.

Having observed 0 errors, pass the test at 67+ samples, otherwise continue

Having observed 1 error, pass the test at 95+ otherwise continue

Having observed 2 errors, pass the test at 119+ samples, fail the test at 2- samples, otherwise continue

Etc. etc.

Having observed 151 errors, pass the test at 2452+ samples, fail the test at 2433- samples, otherwise continue

Having observed 152 errors, pass the test at 2466+ samples, fail the test at 2451- samples.

Where x+ means: x or more... x- means x or less

NOTE 1: an ideal DUT passes after 67 samples. The maximum test time is 2466 samples.

NOTE 2: It is allowed to deviate from the early decision concept by postponing the decision (pass/fail or continue). Postponing the decision to or beyond the end of Table G.2.4-1 requires a pass fail decision against the test limit: pass the DUT for ER<0.0618, otherwise fail.

... But others follow the G.2A annex ...

8. Measure the average throughput for each component carrier for duration sufficient to achieve statistical significance according to Annex G.2A.

This annex requires measurements using 1003 samples so the test time is increased significantly ...

G.2A.4 Pass fail limits

Apply 1003 samples to the DUT per CC.

Decide pass per CC in case of ≤ 62 errors, otherwise fail.

Action on RAN5:

To reduce the test time, please consider aligning all 7.6.2A.x TS36.521-1 test cases to Annex G.2. See list of test cases below.

Test	Type	Type of Tput meas
7.6.2A.2 FDD	2CC FDD Intraband Contiguous	G.2A
7.6.2A.2 TDD	2CC TDD Intraband Contiguous	G.2A
7.6.2A.3 FDD	2CC FDD Interband	G.2
7.6.2A.3 TDD	2CC TDD Interband	G.2
7.6.2A.4 FDD	2CC FDD Intraband Non Contiguous	G.2A
7.6.2A.4 TDD	2CC TDD Intraband Non Contiguous	G.2A
7.6.2A.5 FDD	3CC FDD Interband + Intraband Contiguous	G.2A
7.6.2A.5 TDD	3CC TDD Interband + Intraband Contiguous	G.2A
7.6.2A.5 TDD	3CC TDD Intraband Contiguous	G.2A
7.6.2A.5 FDD	3CC FDD Interband + Intraband Non Contiguous	G.2A
7.6.2A.5 FDD	3CC FDD Interband 1 Feed	G.2A
7.6.2A.5 FDD	3CC FDD Interband 2 Feeds	G.2A

Thank you.

Proposal B ...

Although the LS requested a short list of those LTE RF/RRM test cases which would provide the most benefit; CAG has also identified a number of GSM test cases from TS51.010 which CAG would like RAN5 to consider as part of this work.

Test Case No.	Test Case Title	Condition	Justification for Recommendation	Time saving [min.]
14.1.1.1	Receiver, Bad frame indication - TCH/FS - Random RF input	FS	Test conditions (fading profile, SNR, C/I, etc.) for some FS/HS/EFS TCs are already covered by AMR TCs. Besides most network operators will probably only be using AMR these days. If AFS (tc 14.1.5.1 AFS) is supported the test case 14.1.1.1 FS can be skipped	175
14.1.2.1	Receiver, Bad frame indication - TCH/HS - Random RF input	HS	Test conditions (fading profile, SNR, C/I, etc.) for some FS/HS/EFS TCs are already covered by AMR TCs. Besides most network operators will probably only be using AMR these days. If AHS (tc 14.1.6.1 AHS) is supported the test case 14.1.2.1 HS can be skipped	180
14.4.1	Co-channel rejection - TCH/FS	FS	Test conditions (fading profile, SNR, C/I, etc.) for some FS/HS/EFS TCs are already covered by AMR TCs. Besides most network operators will probably only be using AMR these days. If AFS (tc 14.4.8 AFS) is supported the test case 14.4.1 FS can be skipped	10
14.5.1.1	Adjacent channel rejection - speech channels	FS	Test conditions (fading profile, SNR, C/I, etc.) for some FS/HS/EFS TCs are already covered by AMR TCs. Besides most network operators will probably only be using AMR these days. If AFS (tc 14.5.1.2 AFS) is supported the test case 14.5.1.1 FS can be skipped	18
21.3.1	Received signal measurements - Signal quality under static conditions - TCH/FS	FS	Test conditions (fading profile, SNR, C/I, etc.) for some FS/HS/EFS TCs are already covered by AMR TCs. Besides most network operators will probably only be using AMR these days. If AFS (tc 21.3.3 AFS) is supported the test case 21.3.1 FS can be skipped	45

21.3.2	Received signal measurements - Signal quality under static conditions - TCH/HS	HS	Test conditions (fading profile, SNR, C/I, etc.) for some FS/HS/EFS TCs are already covered by AMR TCs. Besides most network operators will probably only be using AMR these days. If AFS (tc 21.3.4 AHS) is supported the test case 21.3.2 HS can be skipped	45
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Approximate time saving per band	11.4	[hours]
Total time saving per GCF certification (GSM900 + GSM1800)	22.7	[hours]