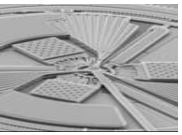
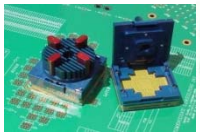
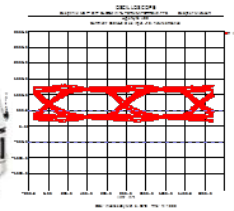
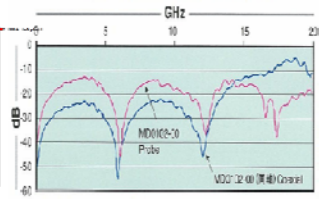
Presenters Logo





Concurrent Test Method for Test Time Reduction in Production of Mobile Devices

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STERICSSON
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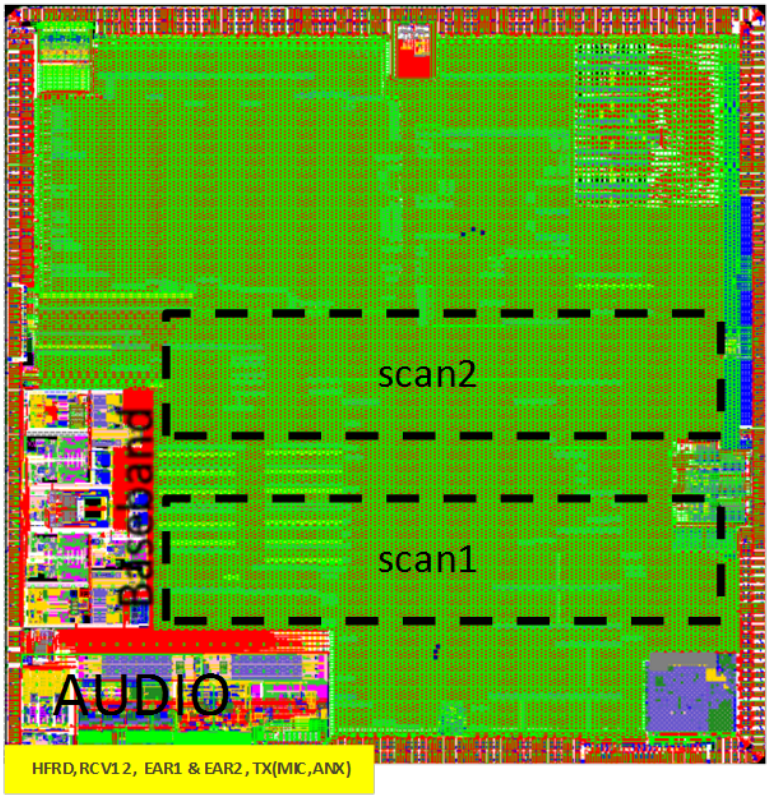
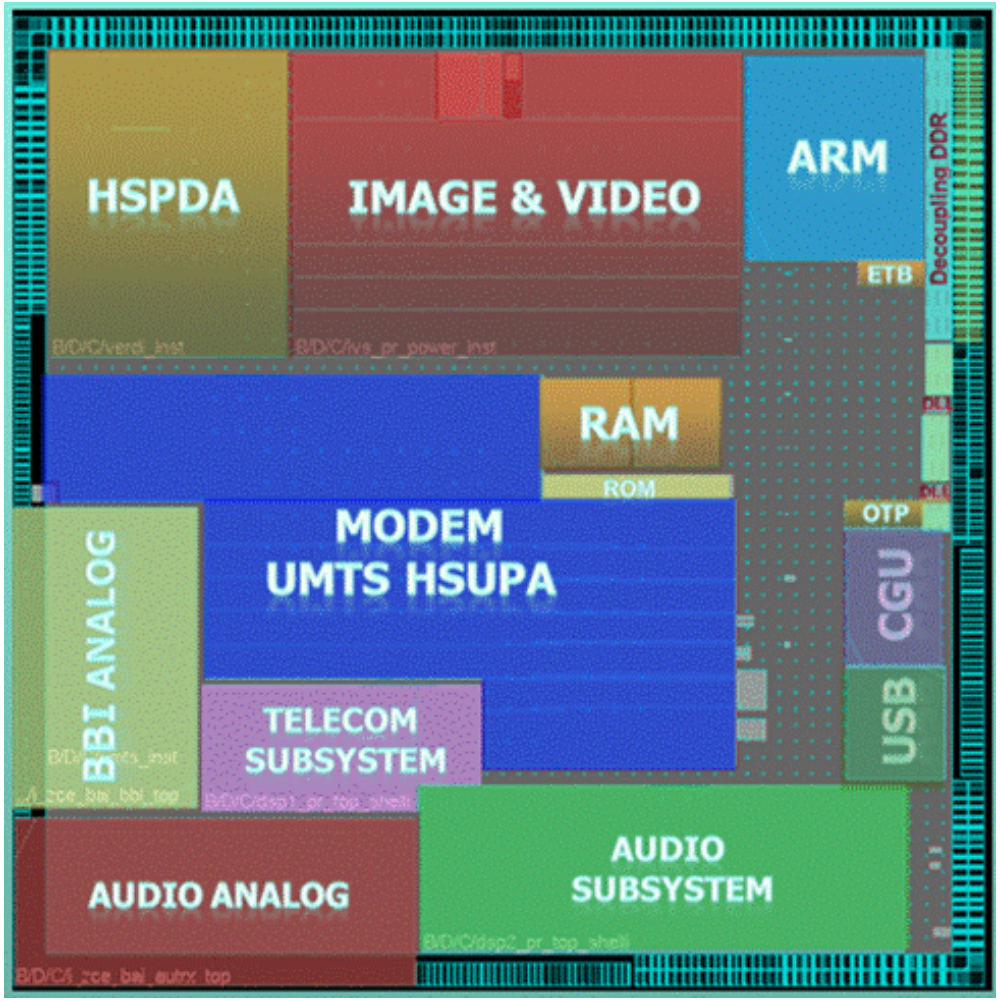
Block Diagram 3G





Block description(Audio)

RX Path

- 2 separate stereo audio paths
- Stereo output amplifiers for headset
- 0.65 WRMS mono class-D amplifiers for loudspeakers
- 16 or 24-bit audio data path
- Sampling frequencies: 8 kHz to 48 kHz

TX Path

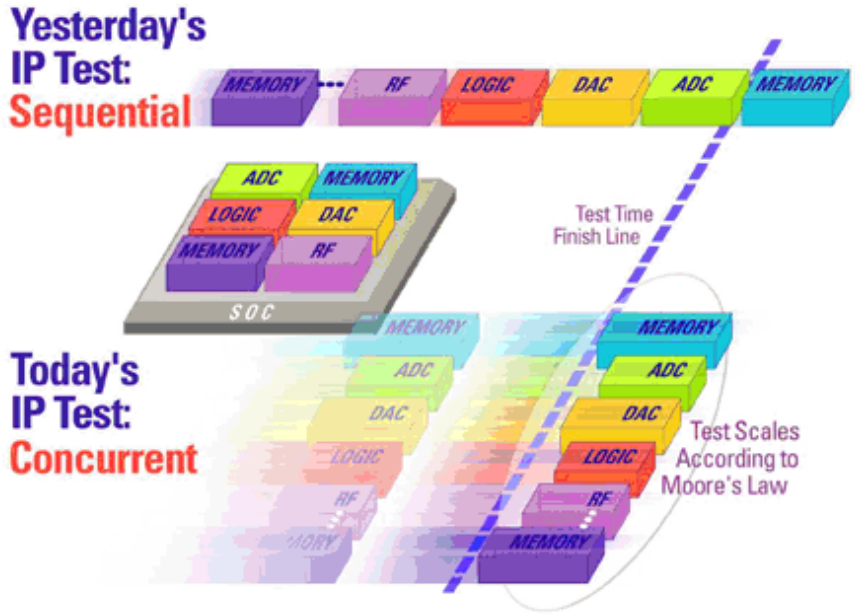
- 2 separated stereo audio paths
- For the analog path:
- 4 differential microphone inputs
- 1 stereo single ended input
- Sampling frequencies: 8 kHz to 48 kHz

Audio interfaces

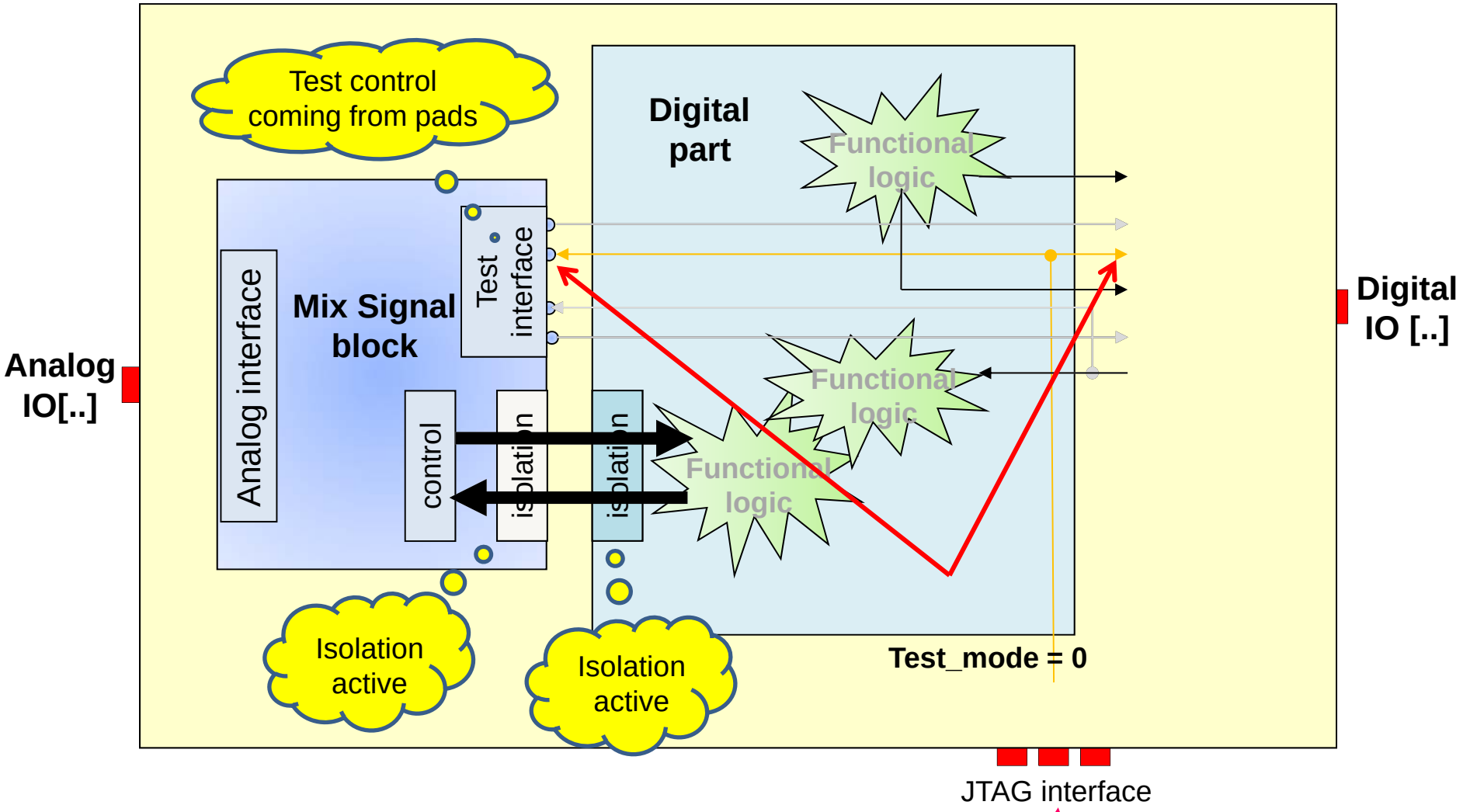
- 2 IIS slave input bus
- 1 IIS master output bus
- IOM-2 interface

Test System

- Verigy 93000
- Test of RX & TX in Parallel for TTR
- 100 Nominal samples tested
- Investigated Parameters : THD, SNR, CSEP, PSR

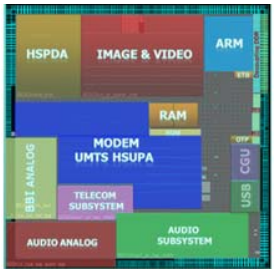


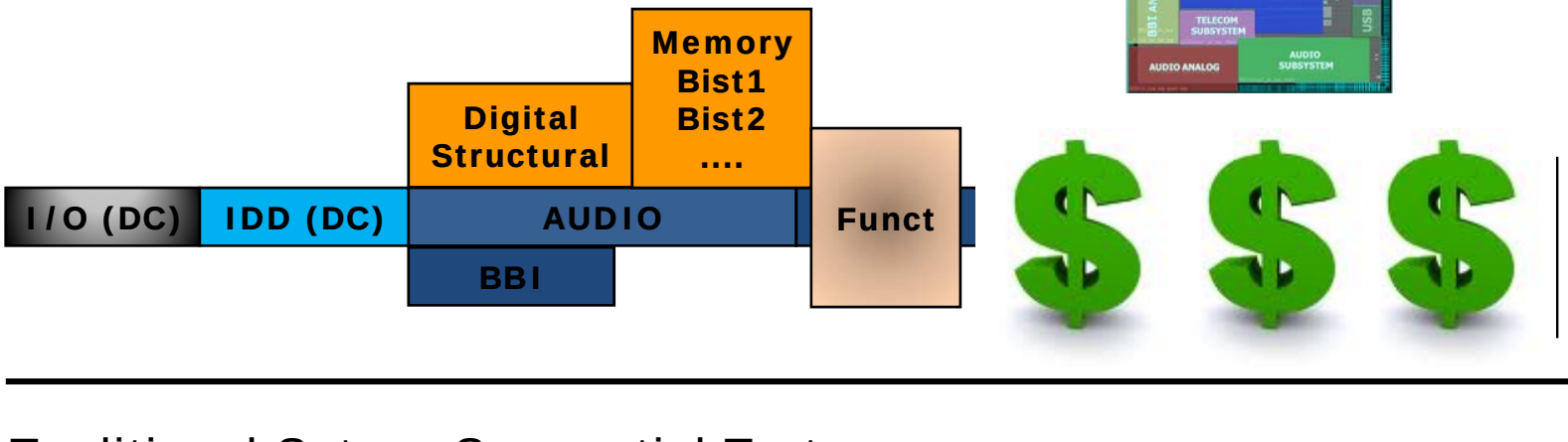
CCT



Concurrent Test Mode instruction

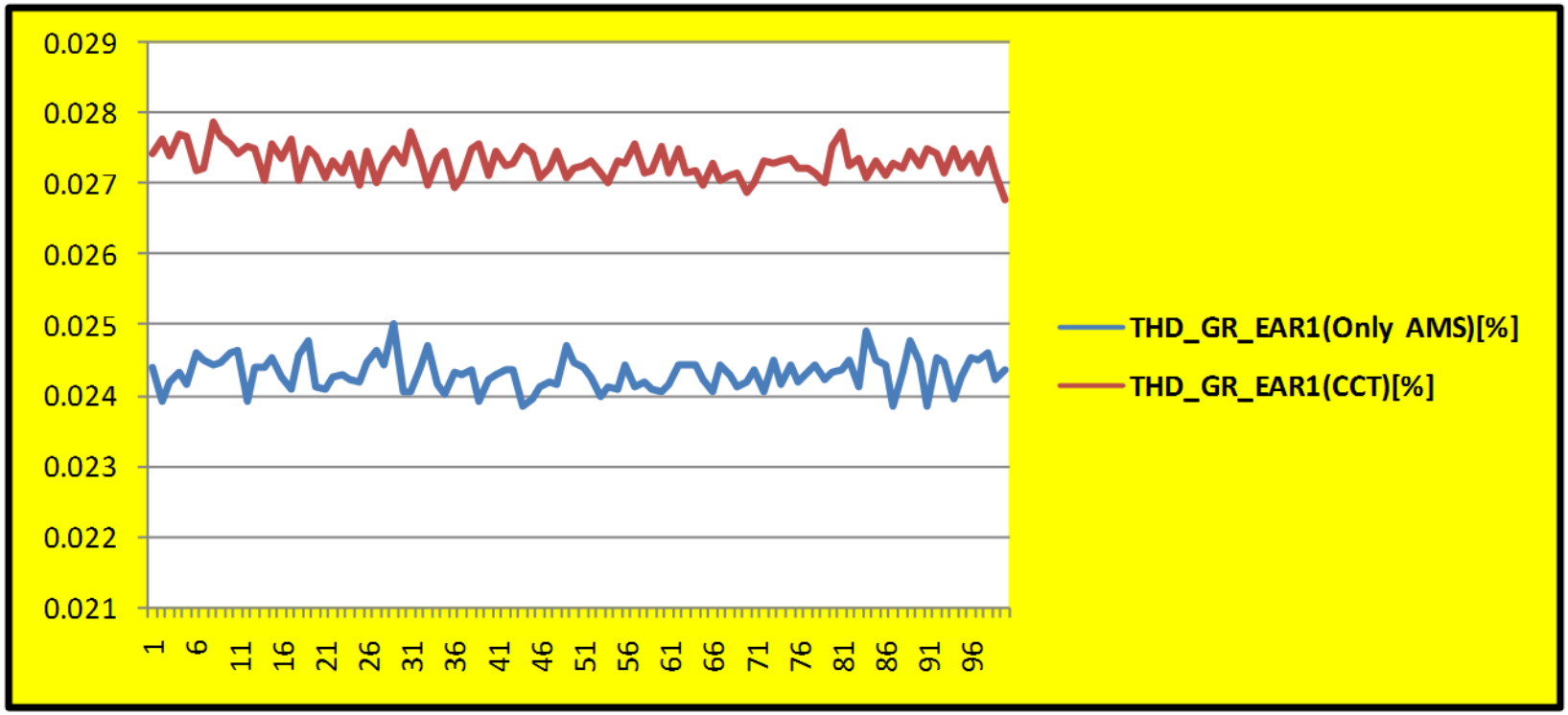
CCT SETUP



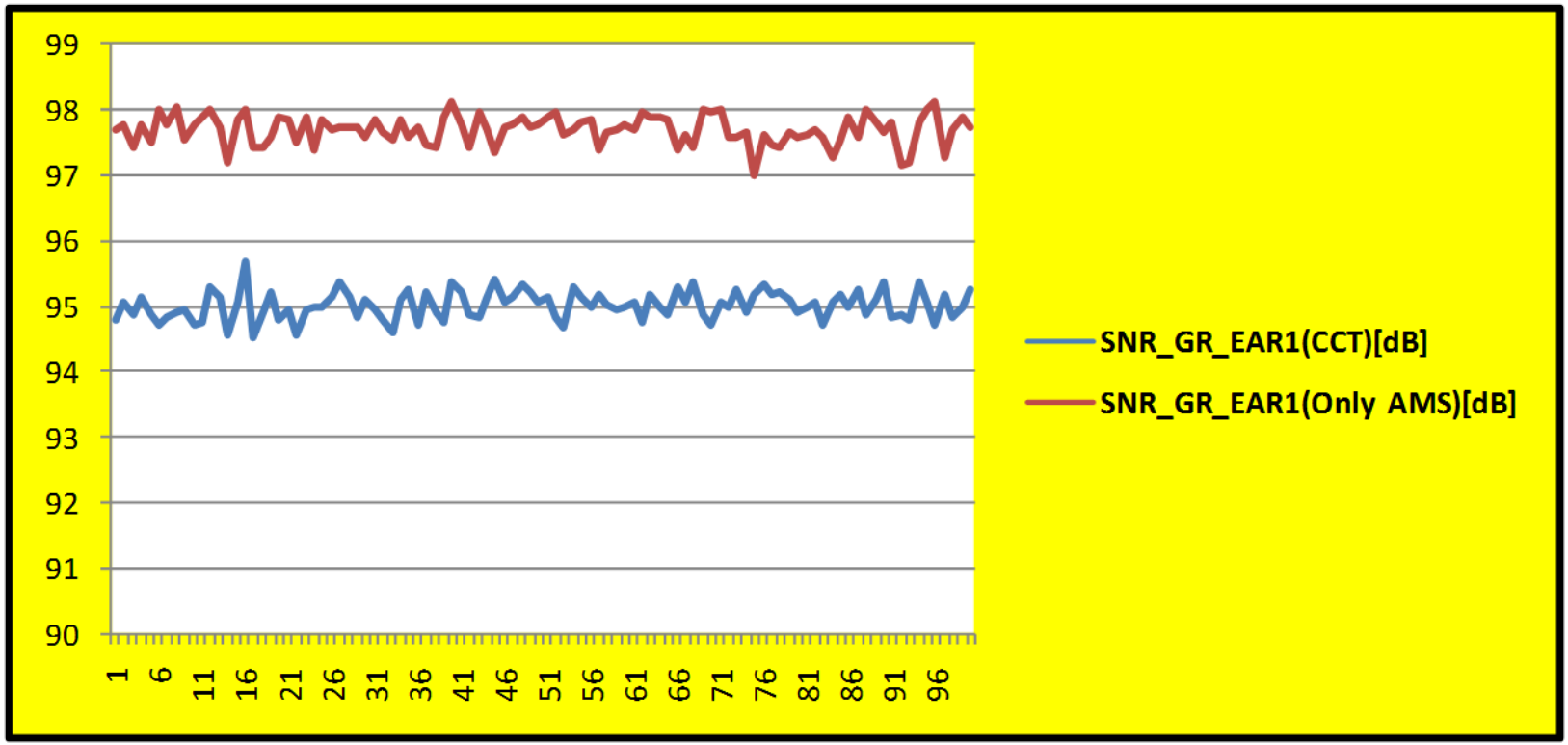


Traditional Setup: Sequential Test

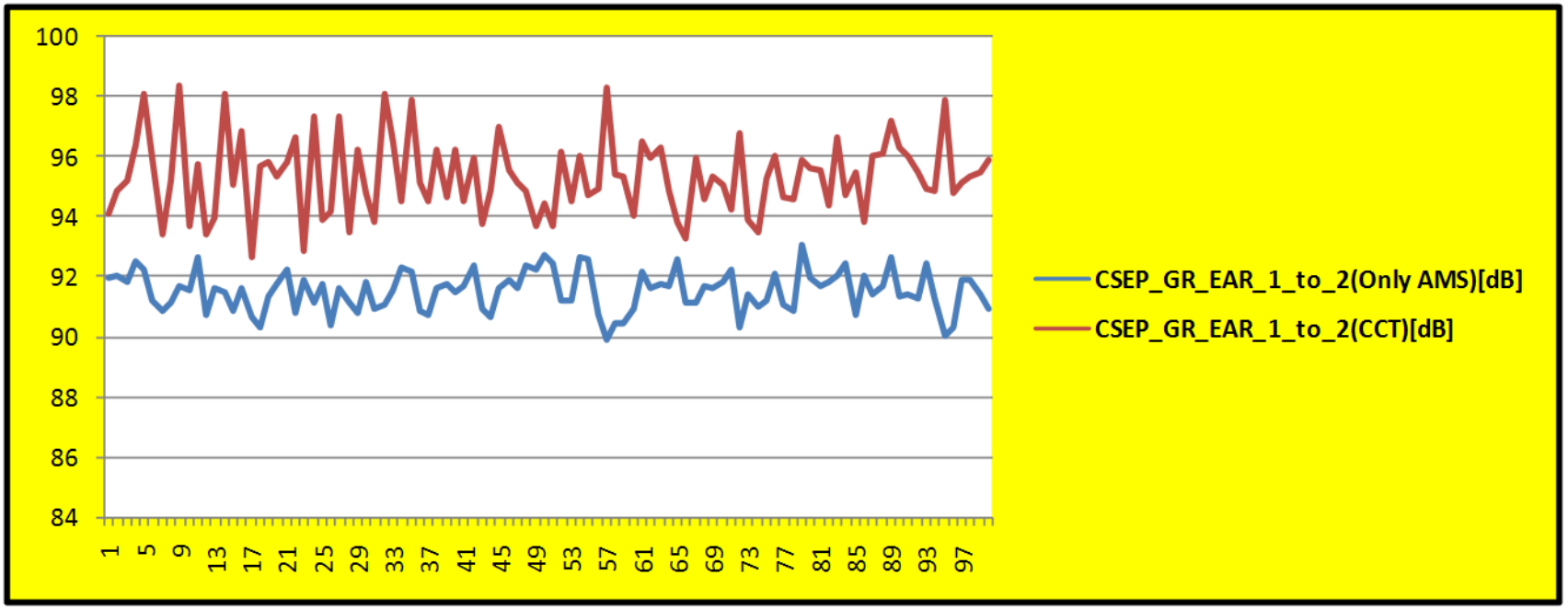
THD_EAR


0.029
0.028
0.027
0.026
0.025
0.024
0.023
0.022
0.021
1
6
11
16
21
26
31
36
41
46
51
56
61
66
71
76
81
86
91
96
THD_GR_EAR1(Only AMS)[%]
THD_GR_EAR1(CCT)[%]

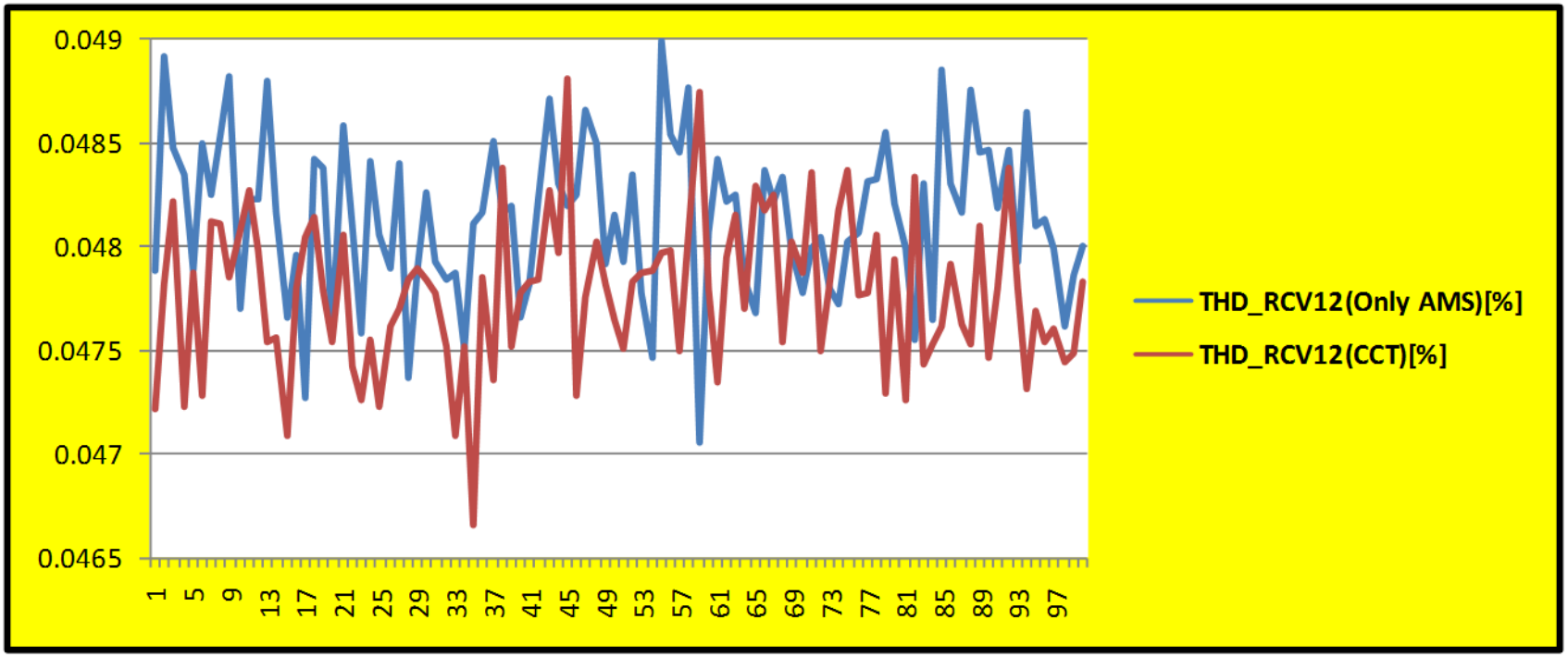
SNR_EAR


99
98
97
96
95
94
93
92
91
90
1
6
11
16
21
26
31
36
41
46
51
56
61
66
71
76
81
86
91
96
SNR_GR_EAR1(CCT)[dB]
SNR_GR_EAR1(Only AMS)[dB]

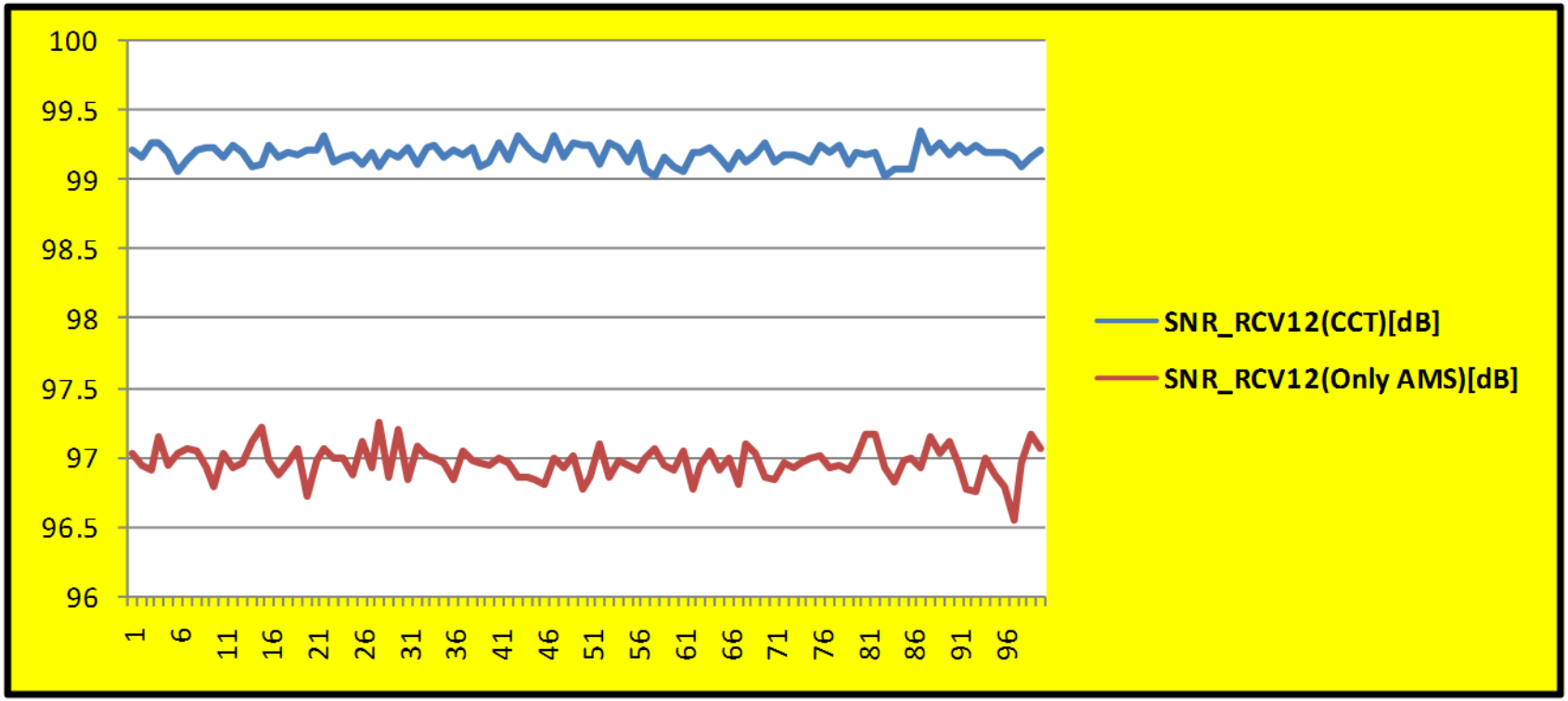
CSEP EAR1/2 to EAR2/1



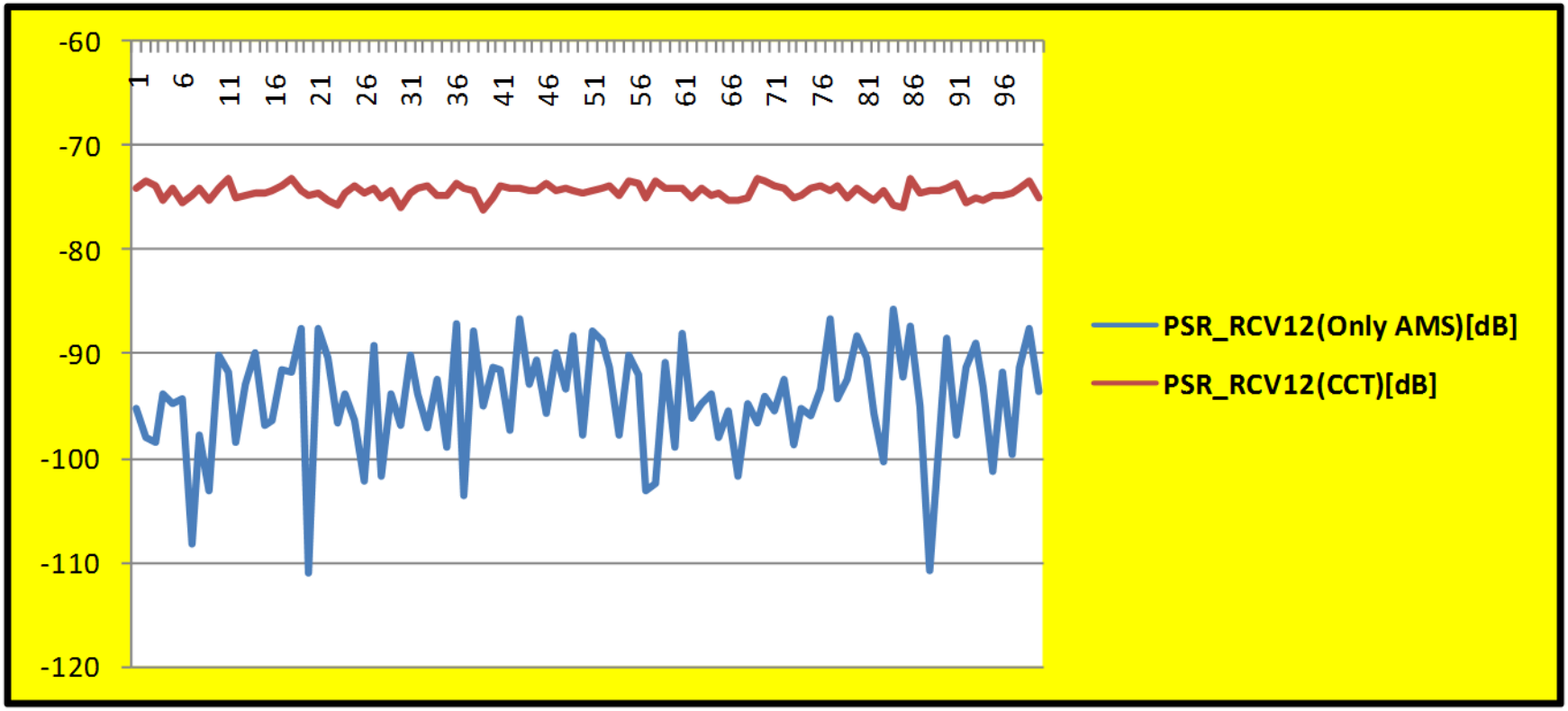
THD_RCV12


0.049
0.0485
0.048
0.0475
0.047
0.0465
1
5
9
13
17
21
25
29
33
37
41
45
49
53
57
61
65
69
73
77
81
85
89
93
97
THD_RCV12(Only AMS)[%]
THD_RCV12(CCT)[%]

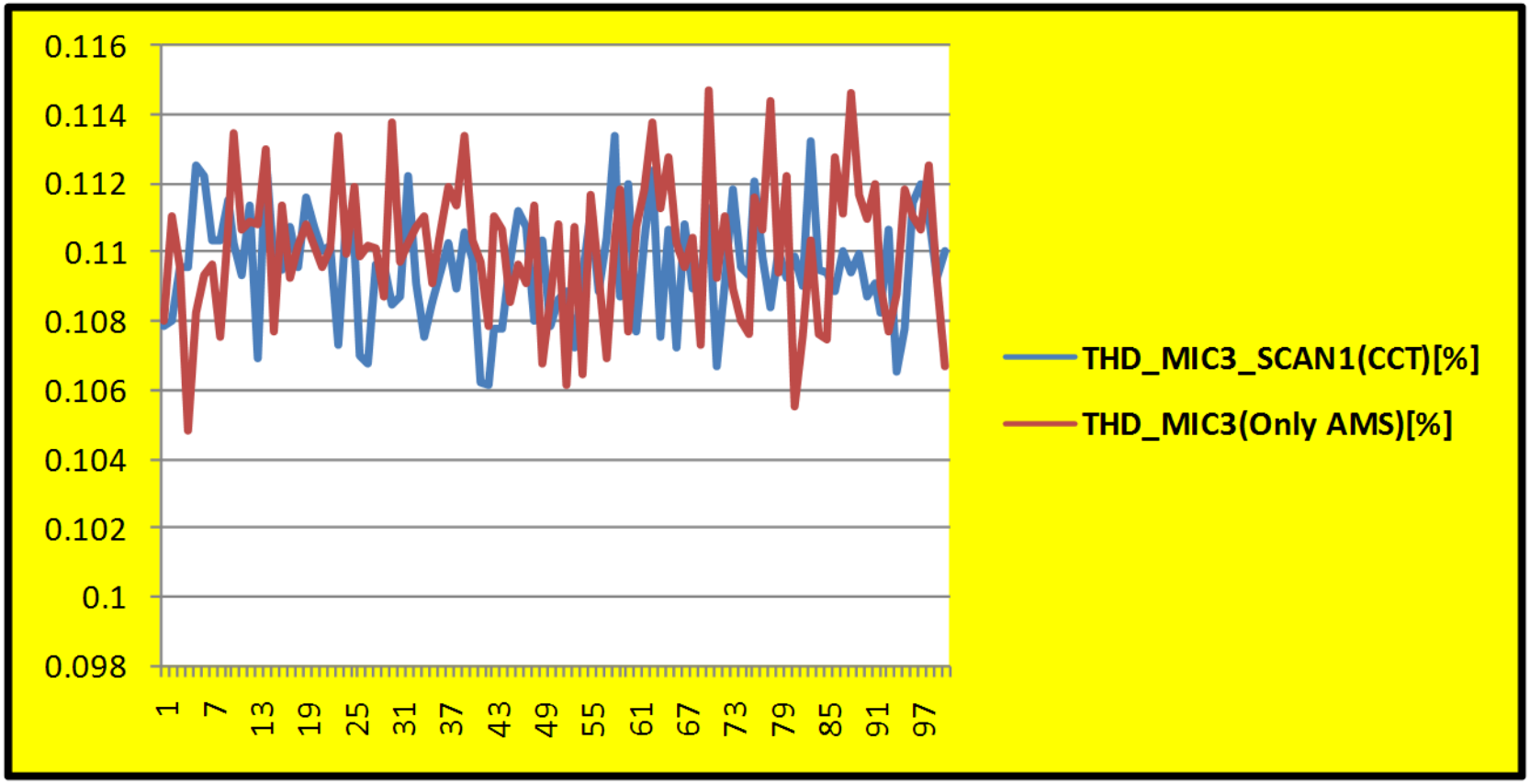
SNR_RCV12


100
99.5
99
98.5
98
97.5
97
96.5
96
1
6
11
16
21
26
31
36
41
46
51
56
61
66
71
76
81
86
91
96
SNR_RCV12(CCT)[dB]
SNR_RCV12(Only AMS)[dB]

PSR_RCV12


-60
-70
-80
-90
-100
-110
-120
1
6
11
16
21
26
31
36
41
46
51
56
61
66
71
76
81
86
91
96
PSR_RCV12(Only AMS)[dB]
PSR_RCV12(CCT)[dB]

THD_TX(MIC)


0.116
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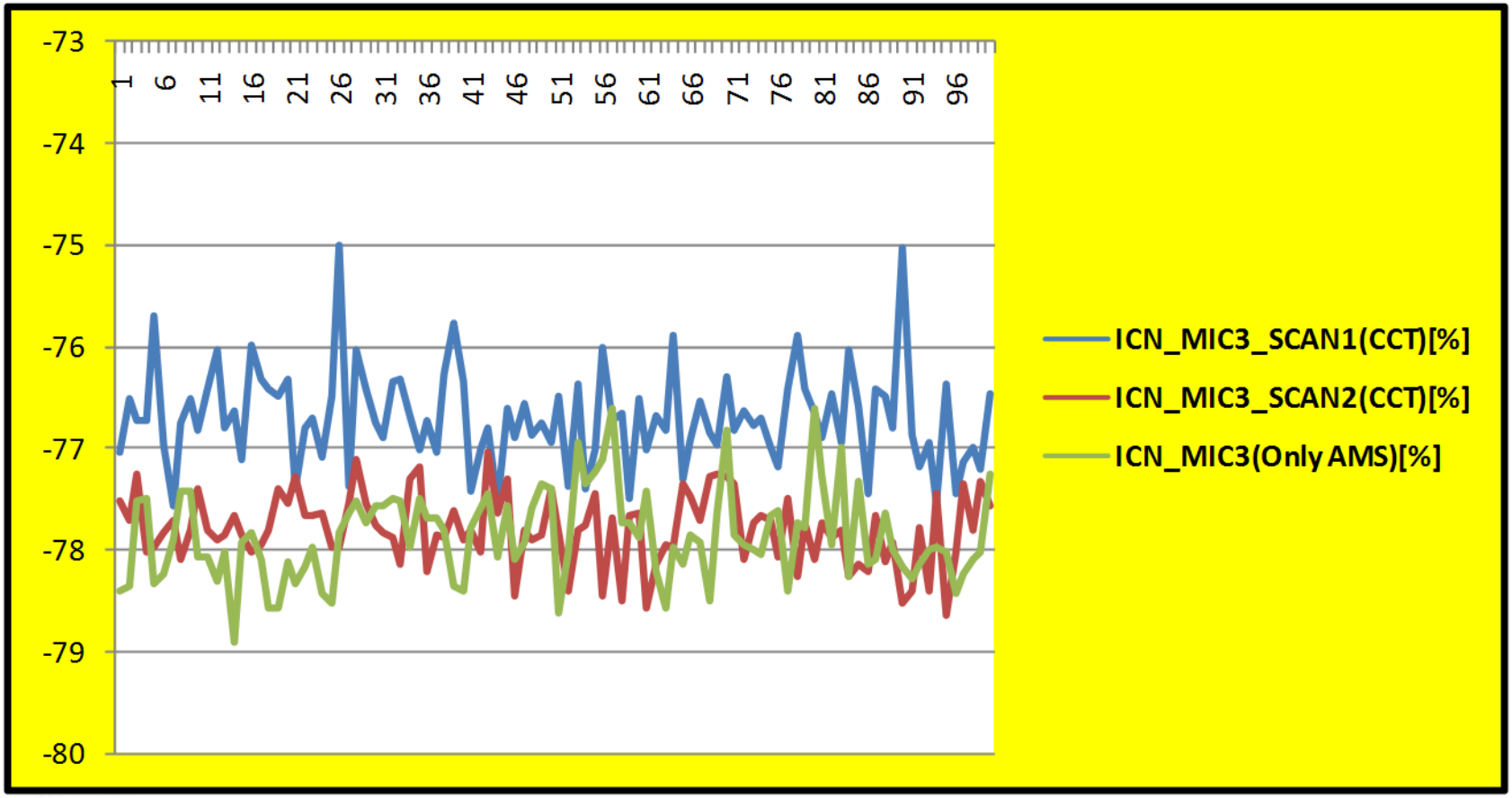
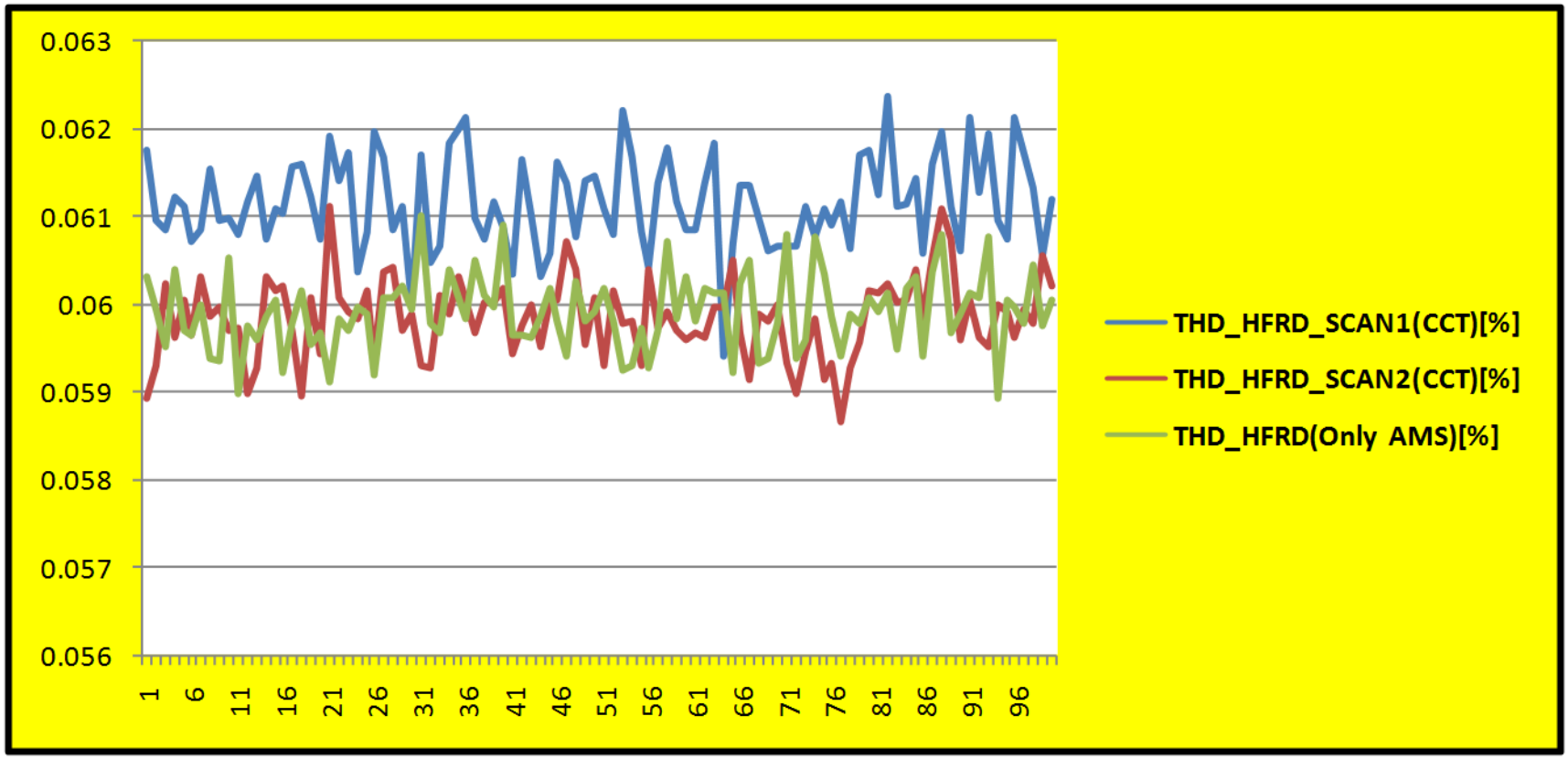
0.106
0.104
0.102
0.1
0.098
1
7
13
19
25
31
37
43
49
55
61
67
73
79
85
91
97
THD_MIC3_SCAN1(CCT)[%]
THD_MIC3(Only AMS)[%]

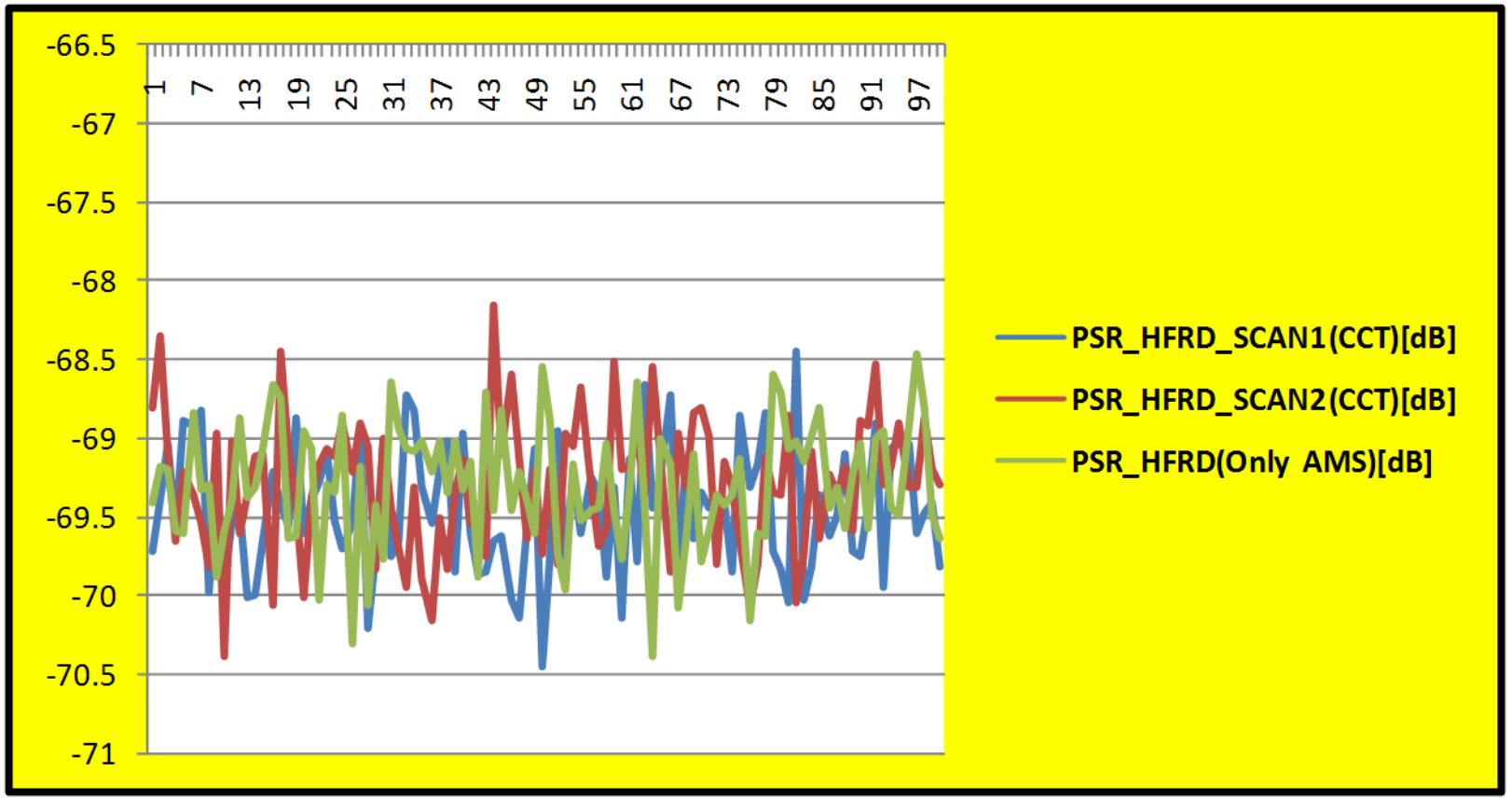
ICN_TX(MIC)


-73
-74
-75
-76
-77
-78
-79
-80
1
6
11
16
21
26
31
36
41
46
51
56
61
66
71
76
81
86
91
96
ICN_MIC3_SCAN1(CCT)[%]
ICN_MIC3_SCAN2(CCT)[%]
ICN_MIC3(Only AMS)[%]

THD_HFRD


0.063
0.062
0.061
0.06
0.059
0.058
0.057
0.056
1
6
11
16
21
26
31
36
41
46
51
56
61
66
71
76
81
86
91
96
THD_HFRD_SCAN1(CCT)[%]
THD_HFRD_SCAN2(CCT)[%]
THD_HFRD(Only AMS)[%]

PSR_HFRD


-66.5
-67
-67.5
-68
-68.5
-69
-69.5
-70
-70.5
-71
1
7
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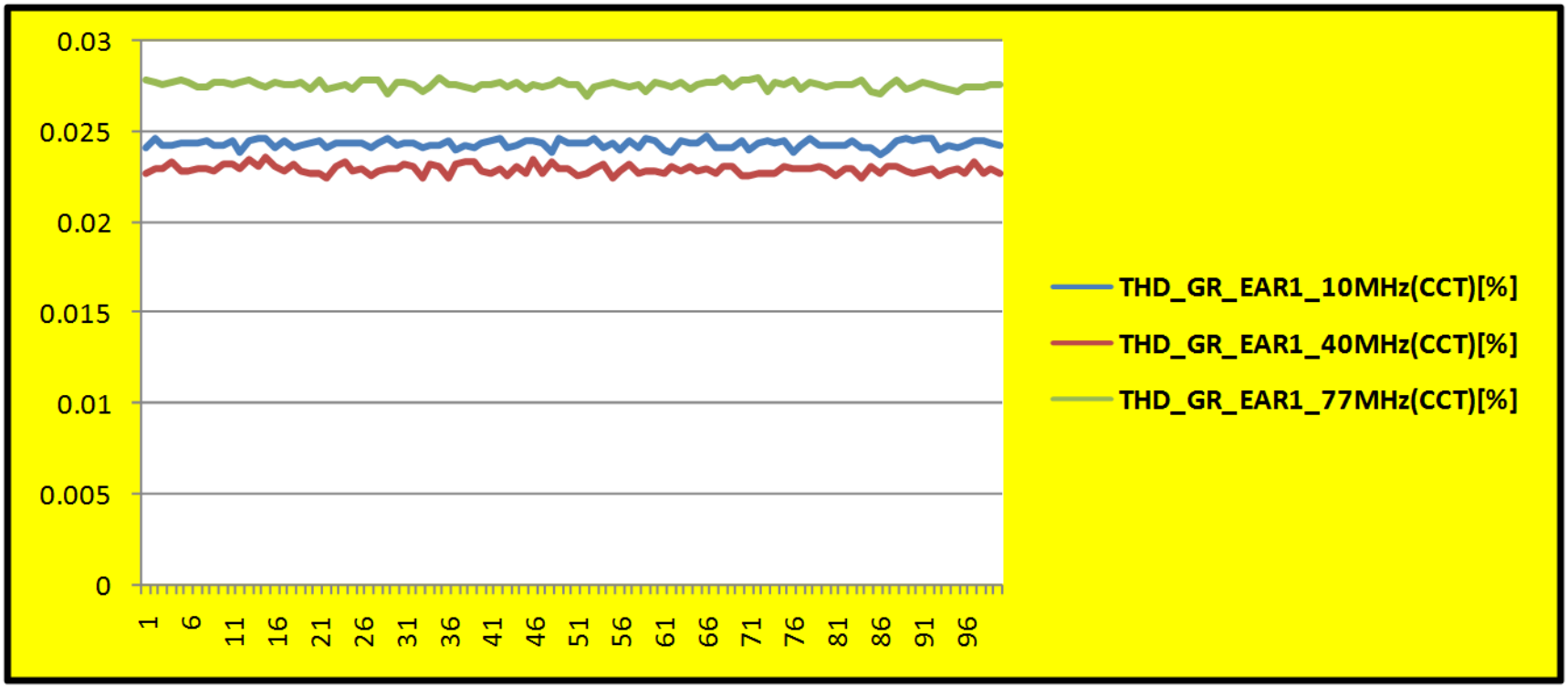
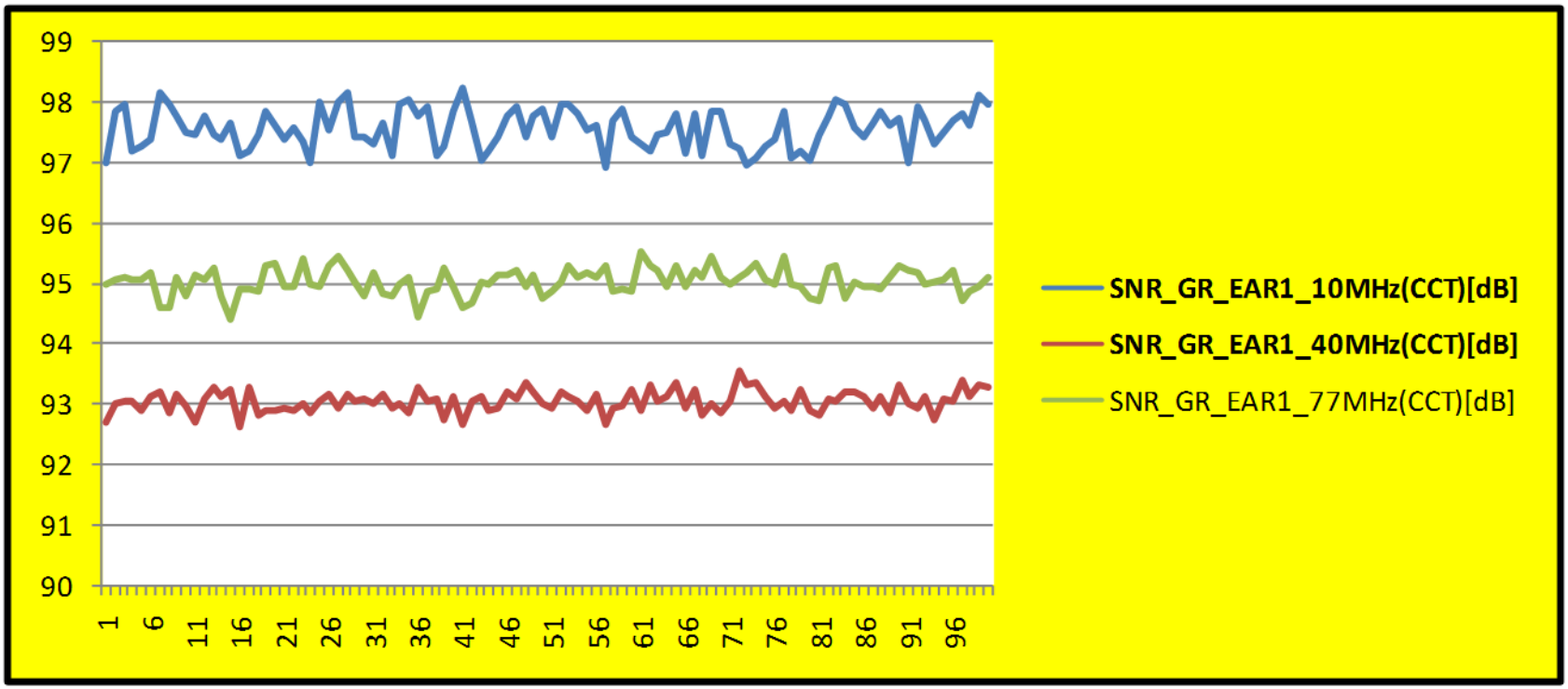
19
25
31
37
43
49
55
61
67
73
79
85
91
97
PSR_HFRD_SCAN1(CCT)[dB]
PSR_HFRD_SCAN2(CCT)[dB]
PSR_HFRD(Only AMS)[dB]

THD_EAR


0.03
0.025
0.02
0.015
0.01
0.005
0
1
6
11
16
21
26
31
36
41
46
51
56
61
66
71
76
81
86
91
96
THD_GR_EAR1_10MHz(CCT)[%]
THD_GR_EAR1_40MHz(CCT)[%]
THD_GR_EAR1_77MHz(CCT)[%]

SNR_EAR


99
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94
93
92
91
90
1
6
11
16
21
26
31
36
41
46
51
56
61
66
71
76
81
86
91
96
SNR_GR_EAR1_10MHz(CCT)[dB]
SNR_GR_EAR1_40MHz(CCT)[dB]
SNR_GR_EAR1_77MHz(CCT)[dB]

Summary

- Impact of CCT mode on THD Downlink (Single Ended)
- THD dependency on Scan chain adjucent to Audio
- No Impact of CCT mode on THD Downlink in Diff. mode
- SNR Parameter in Downlink in both mode single/Diff. affected
- No Impact of Scan chain 2 on Downlink parameter
- ICN in uplink affected in CCT mode
- Reducing the pattern frequency reduces the impact of CCT mode