Further Test Result for 4*100G PAM4 10km Transmission

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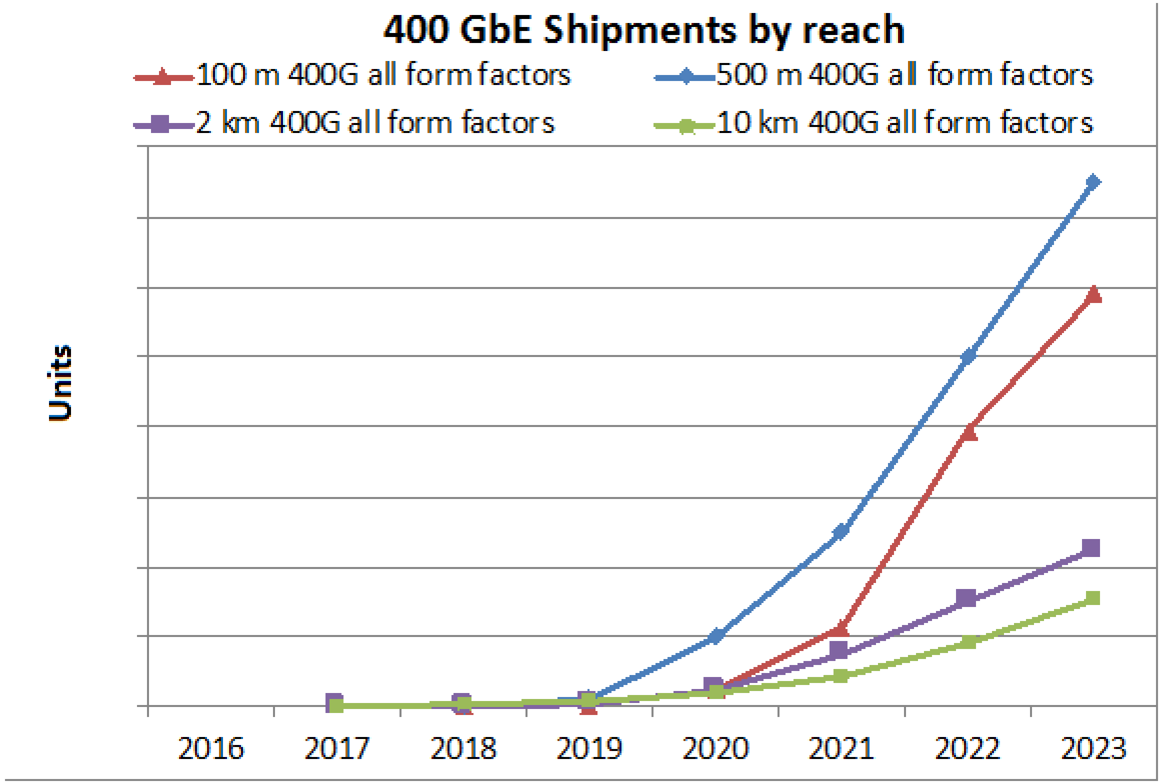
Broad Market



Source: Light counting, September 2018 High Speed Ethernet Optics Report

MWC: Safaricom upgrading backbone network to 400G

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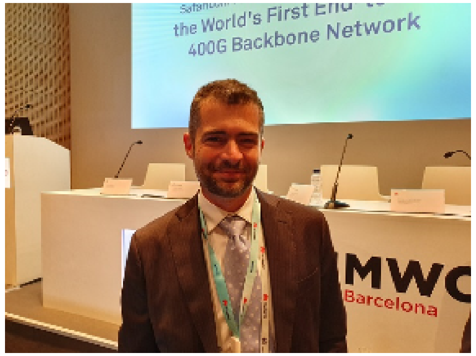
By Paula Gilbert



Safaricom is planning a major upgrade of its backbone network to meet the growing data consumption needs of its customers.

Kenya's leading telecom operator announced its plans for the upgrade at a press briefing at Mobile World Congress (MWC) 2019 in Barcelona, Spain. It announced it would use Huawei's end-to-end 400G solution for its next-generation backbone network.

Safaricom said the 400G backbone will replace its existing 100G backbone, increasing the capacity of network traffic carried between Mombasa, Nairobi and Kisumu

"Today we use only 100G, meaning 100 gigabit per second (Gbps) per port of our routers in our data centers. Now with this new technology we are able to have a much denser and much higher capacity network with four-times that capacity per port through 400G," Safaricom CTO Thibaud Rerolle told ITWeb in an interview after the announcement.

"This will definitely enable the growing demand in both mobile and fixed broadband in Kenya," he said.

Huawei and Safaricom claim it will be the world's first commercial 400G project, advancing backbone network deployment towards the 400G era.

"We have a plan for a two-year roll-out. Phase one has begun already in the eastern part of the country and as soon as we have completed that we will move on to phase two. So by the end of the next financial year, end of March 2020, we will already be beyond phase one," Rerolle told ITWeb.

READ MORE

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Source: http://www.itwebafrica.com/kenya/245553-mwc-safaricom-upgrading-backbone-network-to-400g

Test environment

Conventional CWDM wavelength specifications

Lane	Center wavelength	Wavelength range
L0	1271 nm	1264.5 to 1277.5 nm
L1	1291 nm	1284.5 to 1297.5 nm
L2	1311 nm	1304.5 to 1317.5 nm
L3	1331 nm	1324.5 to 1337.5 nm

Channel characteristics

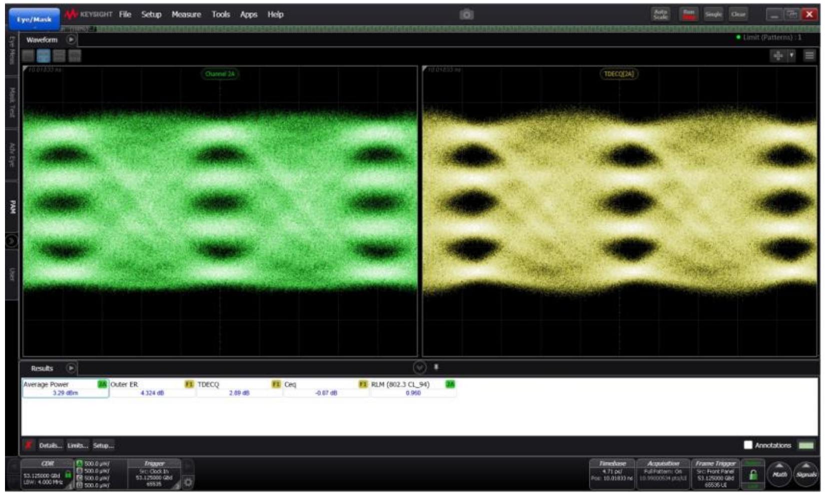
Length	Dispersion min	Dispersion max	Channel loss
10 km	-59.4 ps/nm	33.4 ps/nm	6.3 dB

Test environment

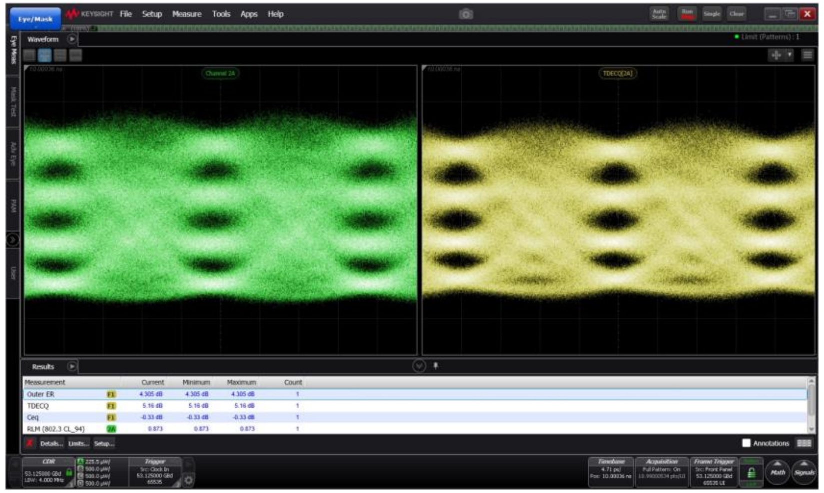
Signal	Bitrate	Test fiber	Temperature
SSPRQ	56GBaud	G.652	25° C

Test result

1268nm
SECQ: 2.7dB

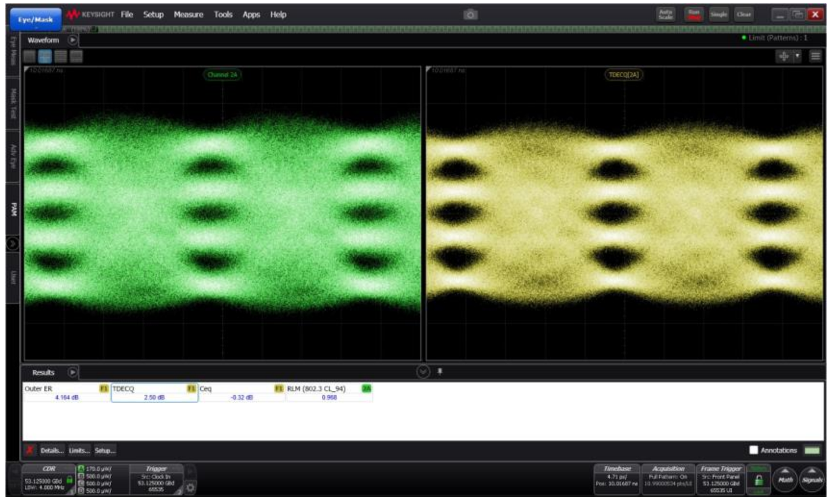


Dispersion = -10.4ps/nm; TDECQ=2.9dB; CD Penalty=0.2dB

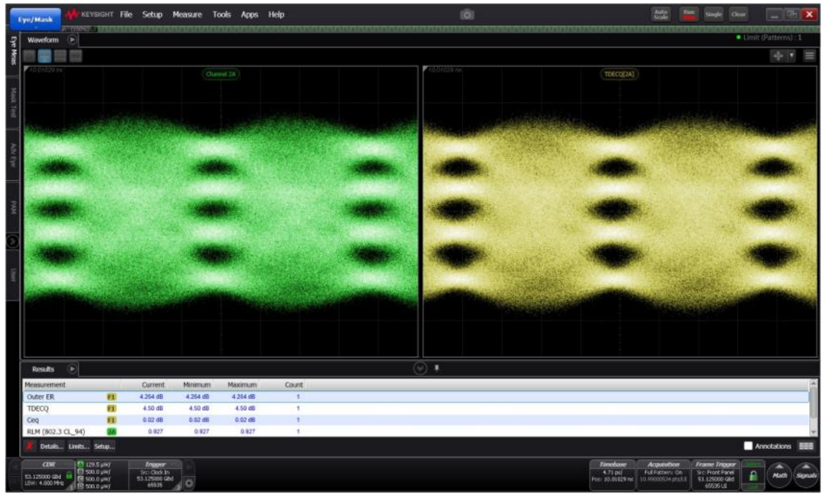


Dispersion = -50.09ps/nm; TDECQ=5.1dB; CD Penalty=2.4dB

1328nm
SECQ: 2.2dB



Dispersion = 5.4ps/nm; TDECQ=2.5dB; CD Penalty =0.3dB

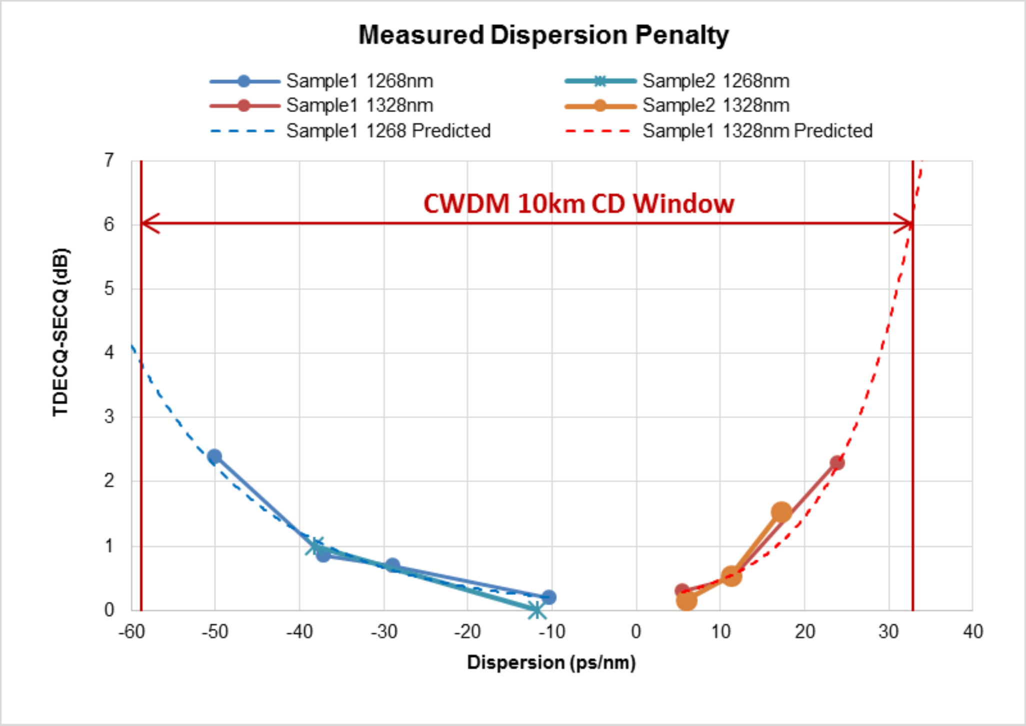


Dispersion = 23.8ps/nm; TDECQ=4.5dB; CD Penalty =2.3dB

Test result

No.	Wavelength(nm)	Dispersion(ps/nm)	ER(dB)	SECQ(dB)	TDECQ(dB)	CD Penalty(dB)
1	1268	-10.40	4.30	2.7	2.9	0.2
		-28.97	4.30	2.7	3.4	0.7
		-37.10	4.30	2.7	3.56	0.86
		-50.09	4.30	2.7	5.1	2.4
		-58.90	4.30	2.7	**Excessively High**	**3.9 (Predicted)**
	1328	5.40	4.20	2.2	2.5	0.3
		11.30	4.20	2.2	2.7	0.5
		23.80	4.20	2.2	4.5	2.3
		30.80	4.20	2.2	**Excessively High**	**6 (Predicted)**
2	1268	-11.70	4.60	2.5	2.5	0
		-38.20	4.60	2.5	3.5	1
		-58.90	4.60	2.5	**Excessively High**	**-**
	1328	5.90	5.10	3.06	3.22	0.16
		11.30	5.10	3.06	3.6	0.54
		17.10	5.10	3.06	4.6	1.54
		33.00	5.10	3.06	**Excessively High**	**-**

Analysis



- If the CWDM grid is chosen for 400G 10 km then based on the test results, at the edges of the wavelength operation range, the TDECQ penalty will start to increase exponentially with small increase of fiber dispersion.
- System operation (BER) in these areas may become unstable with largely varying BER.
- How to avoid unstable system performance should be one of our most important topics of investigation, especially the impact on cost/yield of products.


thank you
danke
рахмат
謝謝
ngiyabonga
teşekkür ederim
Баярлалаа
спасибо
mersi
tack
dank je
gracias
tapadh leat
хвала
mahalo
paldies
matondo
blagodaram
vinaka
kiitos
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