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PRESS RELEASE

What exactly is 4G Technology?

The airwaves of Samoa are now filled with advertisements from Bluesky and Digicel heralding the advent of 4G to Samoa, but what exactly is 4G? Why are the providers claiming 4G but your phones keep saying 3G. The Office of the Regulator would like to clear the air and provide an explanation.

The 4G technology refers to the fourth generation technology, so 2G would be second generation and 3G the third generation. The International Telecommunications Union (ITU) is the one who sets these standards and they describe 3G technology as Mobile Telecommunications-2000 or IMT-2000 specifications. These standards have been adopted and widely used worldwide, Samoa as a member of the International Telecommunications Union is also adopting the same standards. 3G is the upgraded version of 2G which was introduced back in the 1980s and was brought to Samoa in the 1990s by the then Telecom Samoa Cellular Limited. Samoa has since been using the 2G, 2.5G and then 2.75G technology until the launching of the upgraded IMT2000 technology better known as 3G or third generation.

The current deployment for 3G in Samoa is in the band of frequencies also used by the previous 2.5 G service. It is important to note that in Samoa both operators use spectrum of 900MHz band or commonly known as the GSM band so only those phones with those frequencies will be able to pick up the 3G signal. The new services offered by Digicel and Bluesky use WCDMA and HSPA+ technology that is also a 3G technology. These 3G technologies have been marketed in different parts of the world by most providers as 3G Advanced or pre 4G when technically it is not true 4G technology.

The fourth generation (4G) systems are based on the official international 4G standards set by ITU recently in 2010, called International Mobile Telecommunications – Advanced or IMT-Advanced, these are mobile systems that include the new capacities of IMT that go beyond those of IMT-2000 or 3G. There are important aspects that distinguish 3G from 4G that users should know about and these are the data speeds as well as other key criteria. The term 4G or 4th Generation defined by ITU should have peak data rates of 100Mbps for mobile and 1Gbps for fixed services. 3G on the other hand has a much lower speed than 4G. Figure 1 below gives different speeds for these different technologies.

	Technology Standard	**Download Speed**	**Upload Speed**
2G	GSM	60Kbps	10Kbps

2.5G	GPRS	114Kbps	20Kbps
2.75G	EDGE	384Kbps	60Kbps
3G	UMTS WCDMA HSPA 3.6 HSPA 7.2	384Kbps 2Mbps 3.6Mbps 7.2Mbps	64Kbps 153Kbps 348Kbps 2Mbps
3G Advanced or Pre 4G	HSPA 14 HSPA + WiMax LTE	14Mbps 56Mbps 6Mbps 100Mbps	5.7Mbps 22Mbps 1Mbps 50Mbps
4G	WiMax 2	1Gbps	100Mbps
	LTE Advanced	1Gbps	100Mbps

Figure 1 Source: ICT Impulse

*Gbps means Giga bits per second and Mbps is Mega bits per second.

From the above table it is important to note that the maximum data speeds vary based on the relative speed of the user's movement. A stationary user, closer to the transmission site or even walking, would have high download and upload speeds of up to 1 Gbps and 100 Mbps.

Getting back to the question posed at the start of this article we can now state that what we have in Samoa is an improvement on the previous technologies but applying the ITU standards it would best be described as 3G Advanced or Pre-4G. The speed is improved as any user of the new systems will attest but even with the improved speed it is not yet fourth generation. The terms 3G, 3.5G or 4G are used as marketing tools but they also have an underlying basis for their definition.

The Office of the Regulator while it feels it necessary to clarify the issue and the key consideration would be not what the service is called but rather whether there has been a significant improvement in quality of service. Quality of service would not only be the speeds but also the reliability of signal, the call not being dropped and customer care. In fact from the consumers point of view the most important quality aspect would be value for money.

Understanding the technical nature of these technologies will let you appreciate the differences and what as a consumer you should expect. It would help you understand why some phones won't pick up the 3G signal, and why you won't have the same speed if you are near the cell-site, stationary as

compared to being in a moving vehicle. The table above would also help to explain why the phones won't show 4G but would show 3G. Digicel and Bluesky are both using WCDMA technology and that WCDMA is fast 3G but not quite 4G standard as defined by the International Telecommunications Union.

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