1. What is the ability of current spectrum allocations to supportnext-generation build-outs

and the anticipated surge in demand and throughput requirements?

The current allocated band of 2110-2170 MHz will not be adequate for next-generation build-outs.

Let us consider a channel width of 5 MHz and a raster of 200 KHz, then the throughput would be

about 12 Mbps for a 10 db SNR (Signal to Noise Ratio) .This is no where near cable or DSL speeds.

Even if the next-generation technologies improve the S/N ratio with spectral efficiency, not much

can be done when the signal to noise ratio is so low at the cell edge that throughput will be low

regardless of the technology.

OFDM air interface is the key for next-generation technologies, but power intensive. OFDM's

advantage really shows up at wider channels. To allow for wider Channels, a large contiguous block

of spectrum is needed. A 100MHz increase of bandwidth could be beneficial for the next-generation

technologies as it would bring the throughputs comparable to Wired Networks. It could be a long

term measure before the spectrum allotment can be revisited.

2. What spectrum bands are best positioned to support mobile wireless

broadband?

It depends on the antenna configurations and of course the speed that an individual customer might

see as impacted by the vehicle motion as well as other users on the cell since it is a shared

network and the terrain associated with that. It could be anywhere within the theoretical limits,

as long as there are blocks of broad contiguous
bands of spectrum, it gives the opportunity to simplify the network or flatten the network and

allows mitigating nearby band interference.

3. What spectrum bands are best positioned to support fixed wireless broadband?

Fixed wireless broadband can be best served with additional allocations in 1710-1850 MHz spectrum

(this is between the Met Satellite and the PCS bands). Since it is adjacent to the existing PCS

bands, Network design could be more easily achieved. Below 1.7GHz the antenna sizes increase and

the power requirements become heavy.

4. What are the key issues in moving spectrum allocations toward their highest and best use in the

public interest?

Licensed spectrum is a premium and it needs to be optimized by some of the following measures:

Underutilized spectrum should be diverted to other users periodically. If a Licensee to a spectrum

has not deployed compatible technologies for that market, that spectrum Should be deemed as underutilized and this spectrum need to be shared with another vendor.

Wireless broadband is not a competitor for wired broadband in Metro markets .
Channel utilization,

whether it's Cable, DSL or Wireless is determined by the SNR and wireless can never achieve the

same SNR as Wired. Wireless should be considered for mobility aspect alone.

The amount of spectrum needed to make wireless broadband compete with wired broadband is more than

10 folds. To allocate that much amount of bandwidth for broadband wireless is simply not possible.

It would disrupt emergency and other essential communications.

Fixed Wireless broadband should always considered be an overlay technology for Metro markets. For

Rural markets, if there is no infrastructure, ireless Broadband Wireless ca n
be a Primary choice.

Current spectrum allocation is not in proportion to demand. Command and control, military,

emergency, maritime set aside, priority should be assigned to Broadband wireless. Life saving

technologies like Telemedicine and Telenavigation could be the main benefactor's for Broadband

wireless. Media and Entertainment come along.

The key issue is allocating large contiguous blocks of spectrum. It could b
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theoretical limits. With Software Defined Radio technology and Electronics
for making multi band

phones cheaper, spectral regions are not as important.

Rural markets should not be tallied by the same spectral efficiency and lin
k
budget issues as the

mass markets (Mobile data usage)

Spectrum usage should not transcend national boundaries. Technologies aren'
t
mature enough to allow

a safe roaming free environment yet.

5. What is the ability of current spectrum allocations to support both the
fixed and mobile

wireless backhaul market?

One of the clear problems that is going to abound is literally hundreds of
thousands of cell sites

because of the need to aggressively reuse the spectrum and provide capacity
at an unprecedented

rate. That means a huge backhaul problem. At present, Bulk of the Wireless
backhaul traffic is

still carried by T-1s and T-3s which is expensive. Backhaul can also be

solved by the advancements

in Wireless Technology.

Utilities companies can also greatly benefit by wireless backhaul
technologies as they move the OAM

functionality to an all IP technology.

In view of the above 2 requirements, backhaul need to be allocated a
significant bandwidth. It need

not be contiguous spectrum because it doesn=92t have the same propensity fo
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interference as at the

actual customer level. Even paired bands will be sufficient as long as ther
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is sufficient

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