

USB Power Delivery Specification 1.0

July 16, 2012

Notice

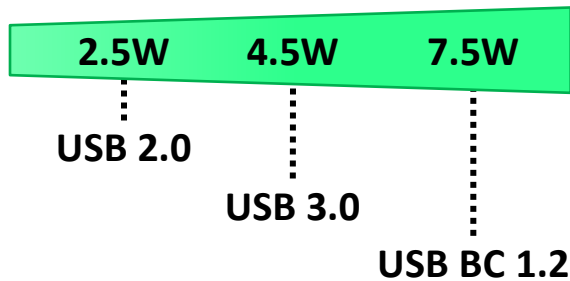
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Taking a Great Idea ...

Broad international adoption of USB Battery Charging standard for mobile devices



- China, Europe drove standardization as a means to increase charger reuse and reduce electronic waste

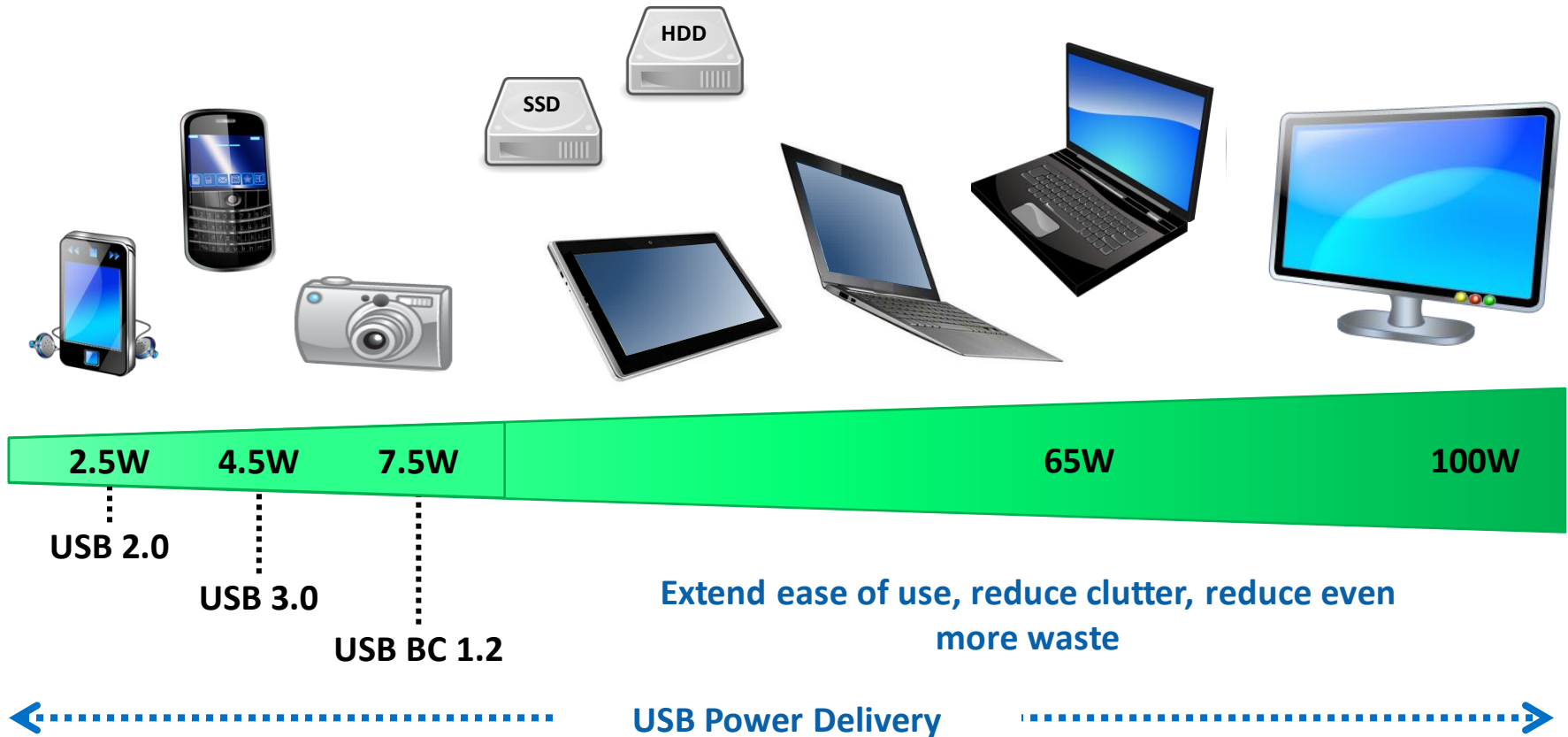


Agreement reached on Micro-USB connector and the standard for the common mobile charger

CENELEC and the USB Implementers Forum reach agreement on memorandum of understanding

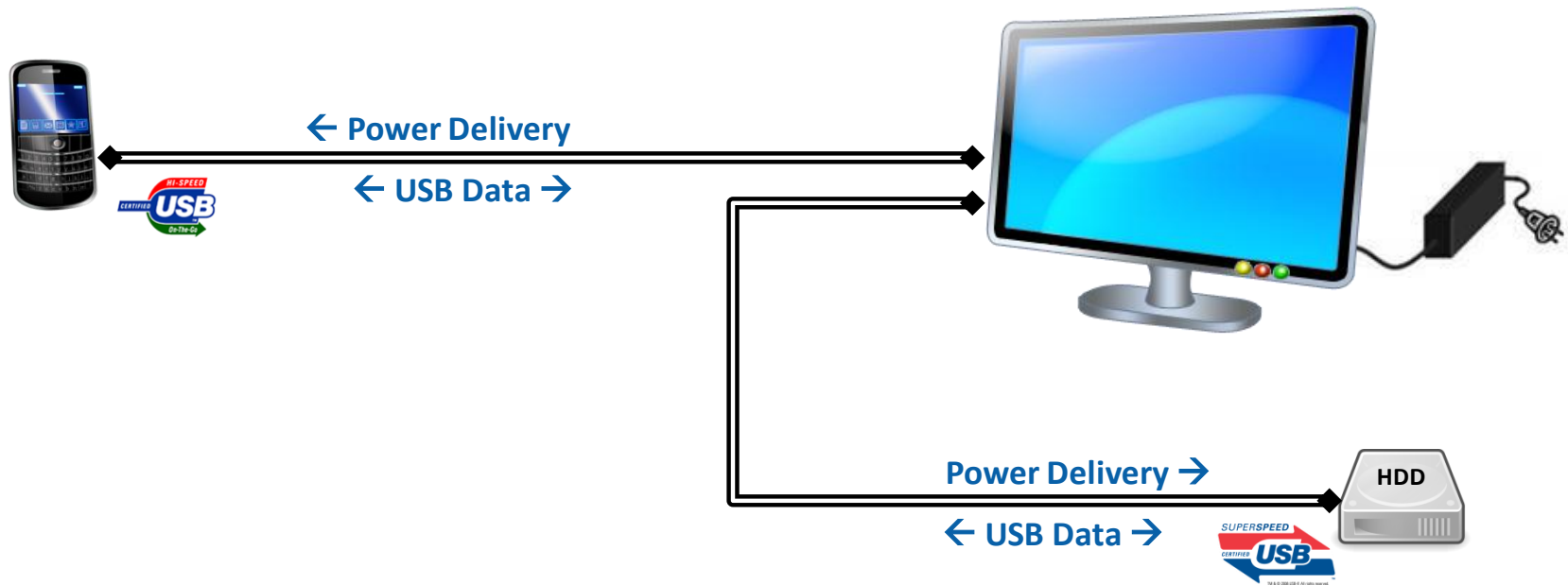
BRUSSELS – March 1, 2011– A Memorandum of Understanding (MoU) was signed today between the USB-IF and CENELEC, the European Committee for Electrotechnical Standardization.

Taking a Great Idea and Making it Even Better



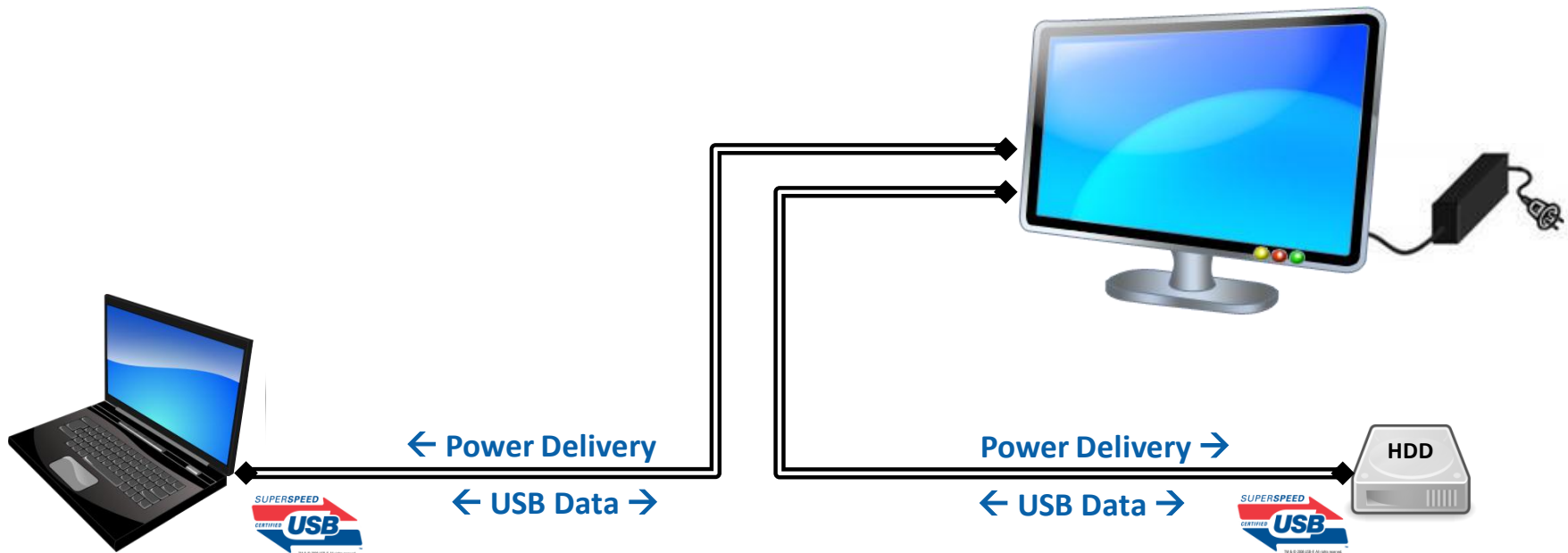
USB Display Docking Example

Display is power source and hub to hosts/devices connected to it
Phone or notebook is USB host driving display and other USB features within or attached to the display



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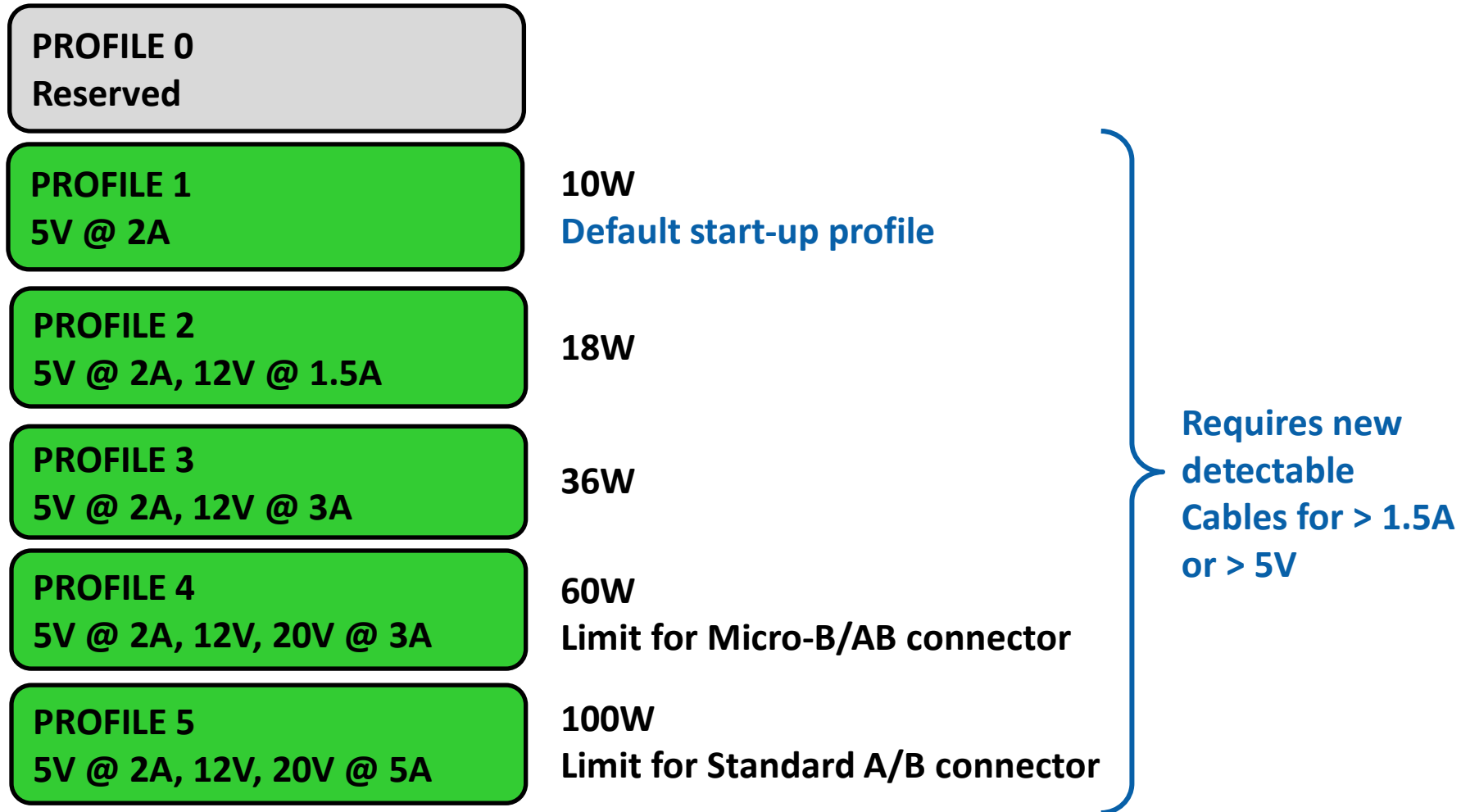
Key Characteristics

- Compatible with existing USB 2.0 and USB 3.0 cables and connectors
- Enables voltage and current values to be negotiated over the USB power pins
- Enables higher voltage and current in order to deliver power up to almost 100W
 - Limits to match cable capabilities
 - Upper limit bound by international safety requirements
- Switchable source of power delivery without changing cable direction
- Coexists with USB Battery Charging 1.2

Target Requirements

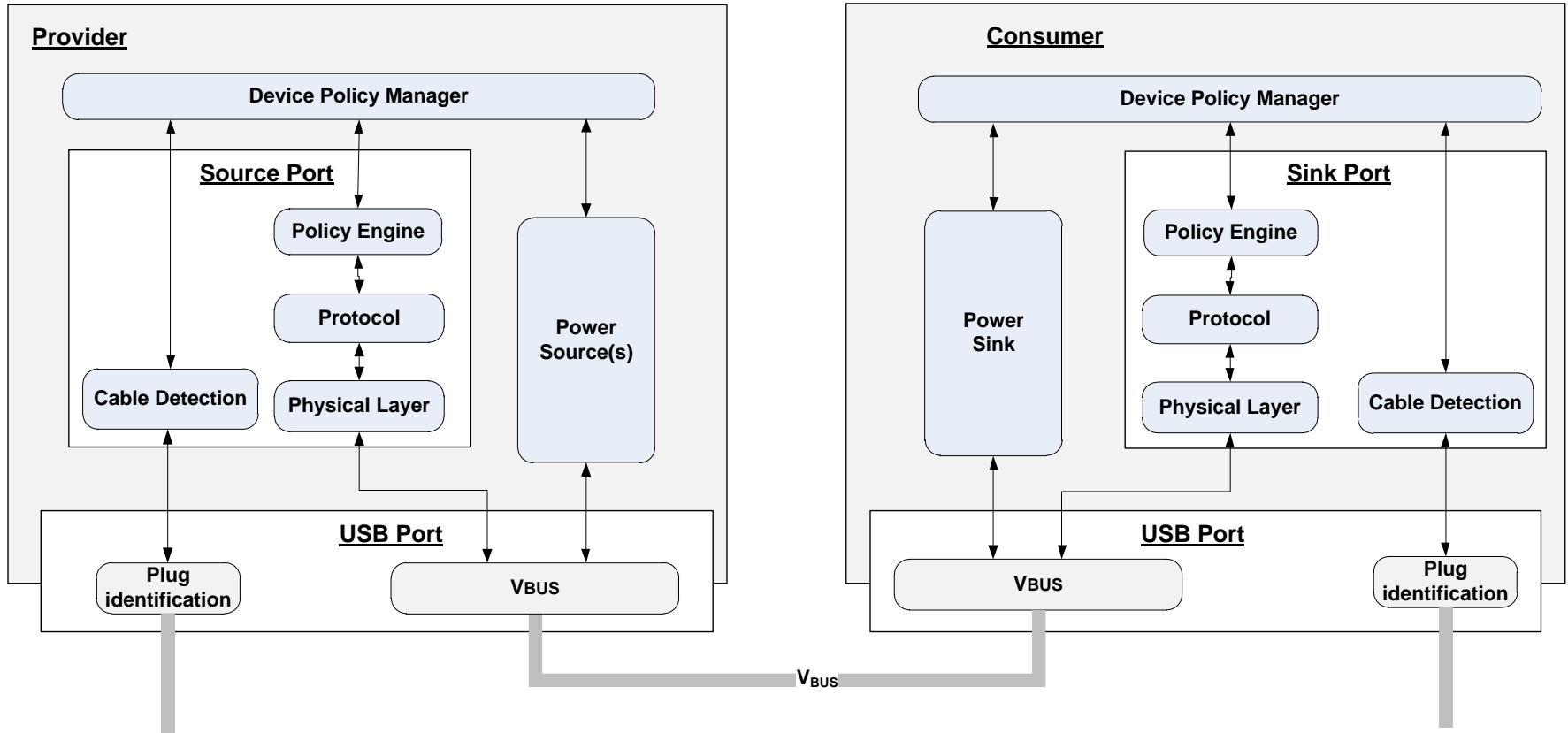
Focus Area	Requirements
Compatibility and coexistence	<ul style="list-style-type: none"> • Work equally well with USB 2.0 and USB 3.0 • Coexists with On-The-Go and battery charging operations • Minimize issues with non-compliant cabling, e.g. limit higher voltage use to known cables
Power	<ul style="list-style-type: none"> • Existing cables: up to 7.5W • PD-aware cables: up to 100W (defined by profiles)
Negotiation	<ul style="list-style-type: none"> • Over V_{BUS} only, no data line usage or reliance
Start-up	<ul style="list-style-type: none"> • Legacy 5V V_{BUS} start, voltage / current adjust after negotiation • Dead Battery detection and charging
Policy	<ul style="list-style-type: none"> • Default policies built-in for hardware-only starts • Software interface enables more advanced policies
User experience	<ul style="list-style-type: none"> • Expose power delivery status to OS • Support features to eliminate silent failures

Source capabilities organized as profiles



- Additional capabilities possible as optional extensions to standard profiles

Architecture



Summary

- Power Delivery specification is available as part of the USB 3.0 and USB 2.0 download packages
<http://www.usb.org/developers/docs/>
- Expecting first products towards the end of 2012.
- We encourage manufacturers to build products taking advantage of this technology.