

IEEE1901/HD-PLC LSI

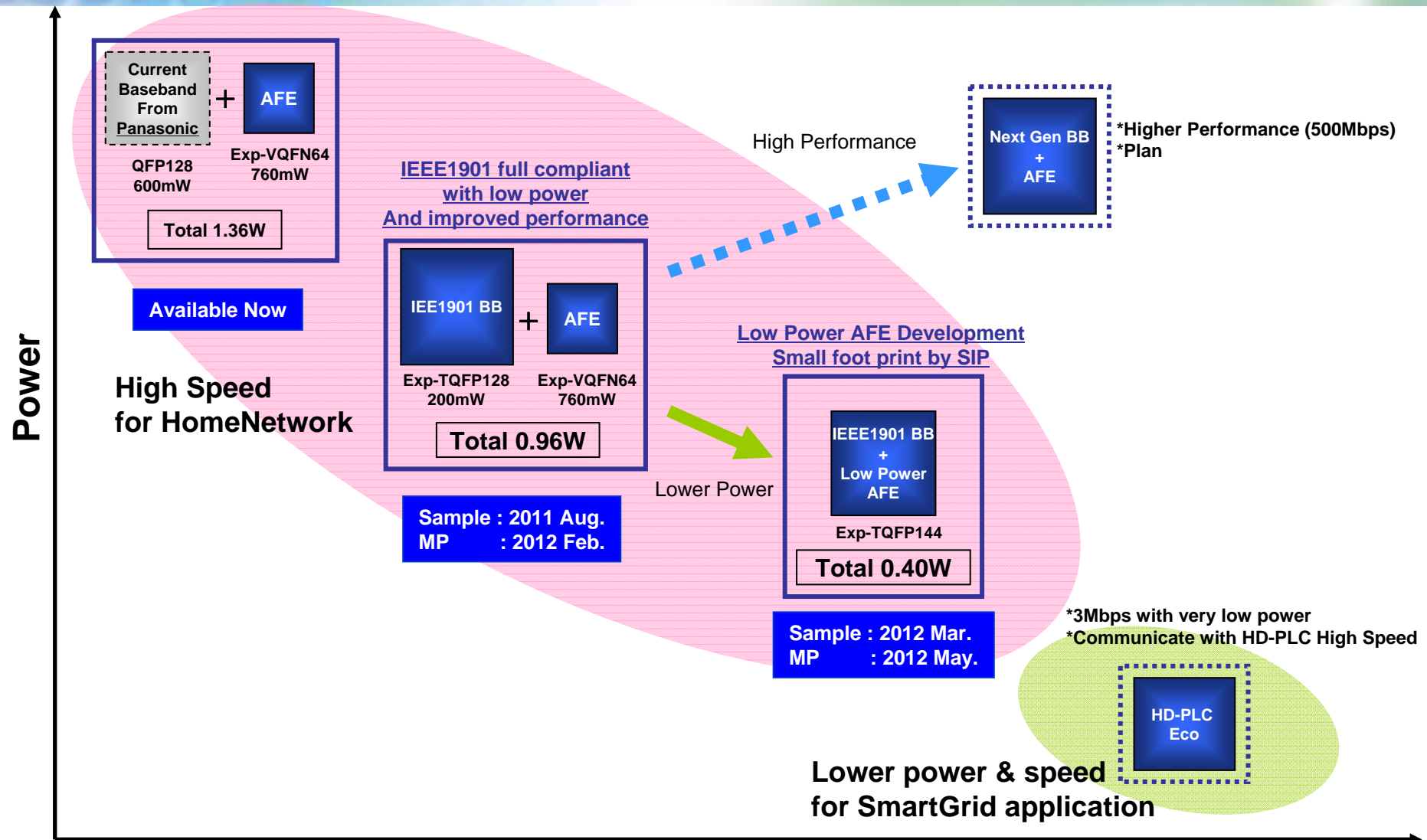
**川崎マイクロエレクトロニクス
(K-Micro)**

10 April, 2012

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K-Micro IEEE1901/HD-PLC products

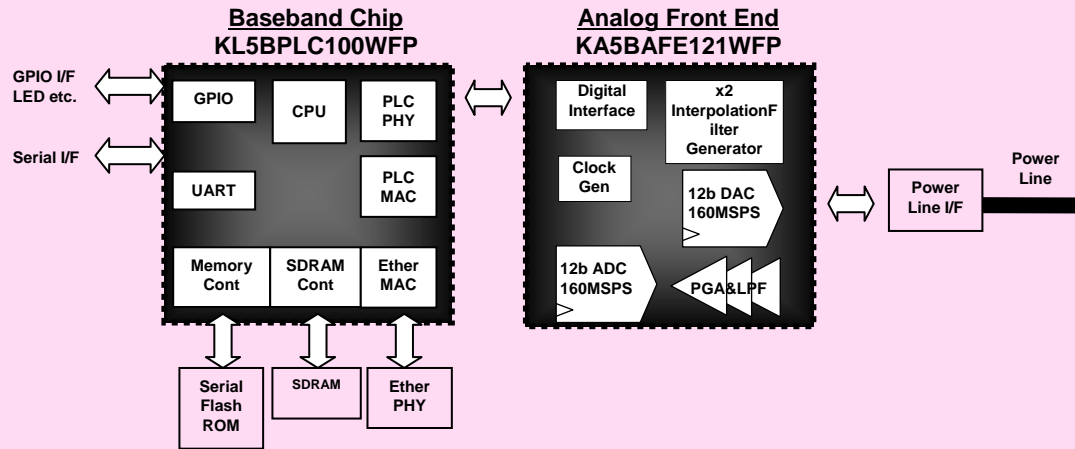
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K-Micro IEEE1901/HD-PLC products 別添1

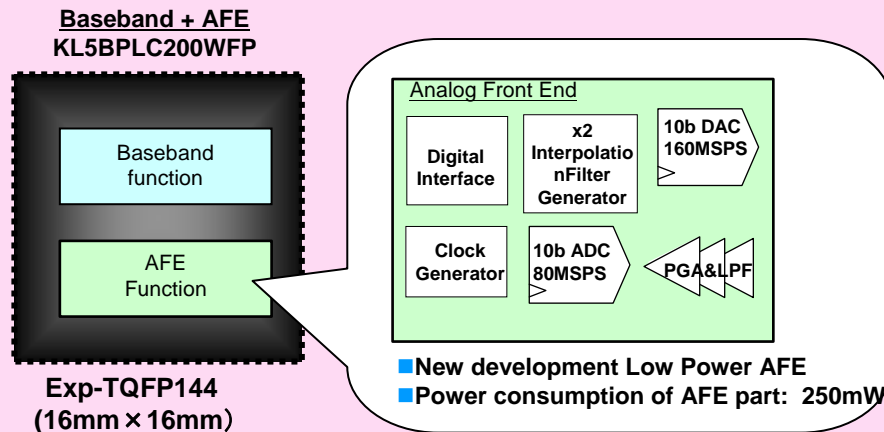
Chipset



KHN13100 Chipset

- ◆ IEEE1901 full compliant
- ◆ Max PHY rate 240Mbps (15% up current version)
- ◆ Low Power BB chip : 200mW @full operation mode
<100mW @sleep mode
- ◆ Wide temp range : -40 ~ 85 degreeC
- ◆ Chipset includes;
 - Baseband chip
Part#: KL5BPLC100WFP
Supply voltage: 1.2V & 3.3V
Package: Exp-TQFP128 (14mm × 14mm)
 - Analog Front End chip
Part#: KA5BAFE121WFP
Supply voltage: 1.2V & 3.3V
Package: Exp-VQFN64 (9mm × 9mm)

Single chip



KHN13200

- ◆ IEEE1901 full compliant
- ◆ Include Baseband & AFE functions into the device
- ◆ Max PHY rate 240Mbps (15% up current version)
- ◆ Low Power : 400mW @full operation mode
- ◆ Wide temp range : -40 ~ 85 degreeC
- ◆ Part#: KL5BPLC200WMP
- ◆ Supply voltage: 1.2V & 3.3V
- ◆ Package: Exp-TQFP144 (16mm × 16mm)

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Advantage of IEEE1901/HD-PLC

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- IEEE1901 Full compliant
- Low Power Consumption
- High transmission efficiency with Wavelet OFDM
- Higher PHY rate

	HD-PLC (Current chipset)	HD-PLC (IEEE1901)	Other PLC
IEEE1901	Partially	Full support	Partially
Frequency Band	2-28MHz	2-28MHz	2-30MHz
Maximum PHY Rate	210	240	200
Modulation	Wavelet OFDM	Wavelet OFDM	Windowed OFDM
Efficiency	1.00	1.00	0.88
Memory size (ratio)	1.00	1.00	8.00
Power Consumption	Low	Very Low	-
Error Correction	-RS -Convolutional	-RS -Convolutional -LDPC-CC	TURBO

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Ultra low power consumption

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Very Low Power solution !

Very Lower than other PLC solution!

KHN13200 (Single Chip)

	<u>Power Consumption .</u>
Full access	0.40W
Power Save Mode	0.07W

Module *Module includes Chip-set, SDRAM, Flash, Ether PHY, Driver

	<u>Power Consumption .</u>
Full access	1.10W
Power Save Mode	0.40W

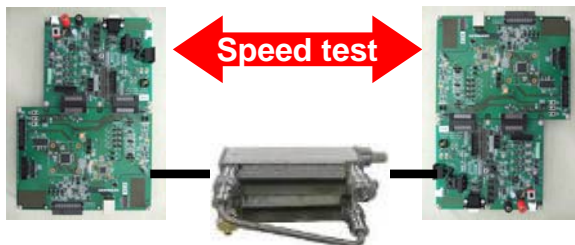
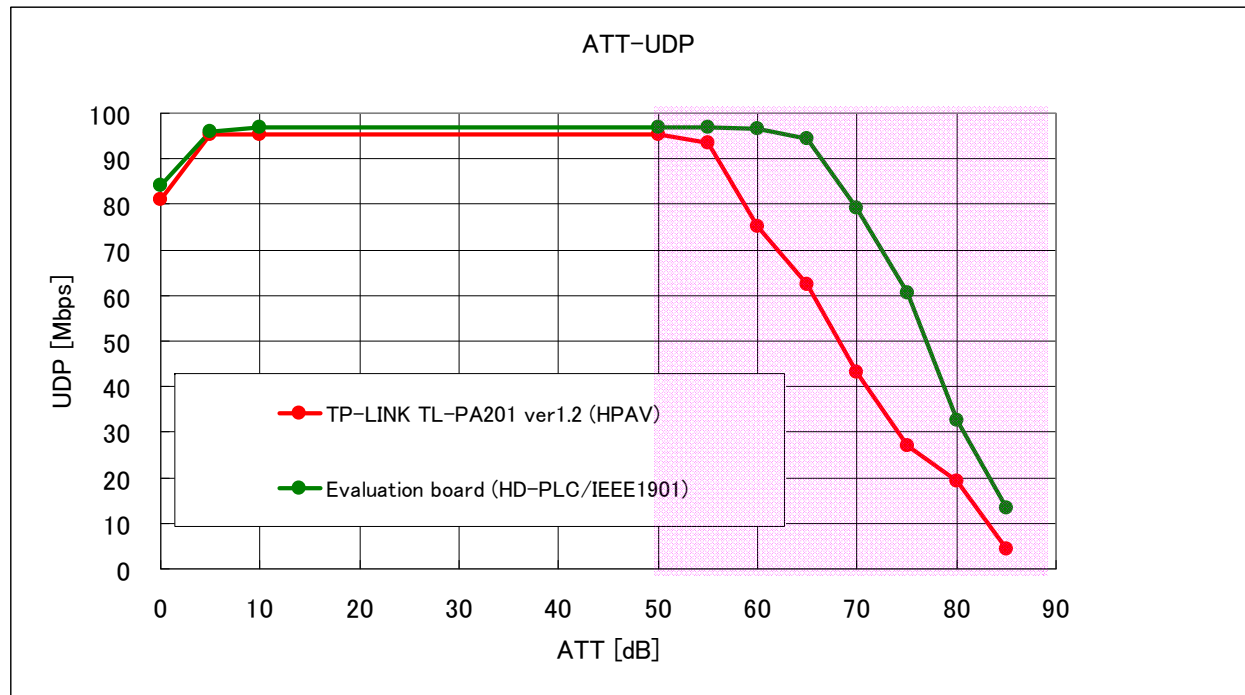
Entire Adapter

	<u>Power Consumption .</u>
Full access	1.60W
Power Save Mode	0.50W

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Evaluation test Data: Speed test at ATT 別添1

HD-PLC is faster than other PLC



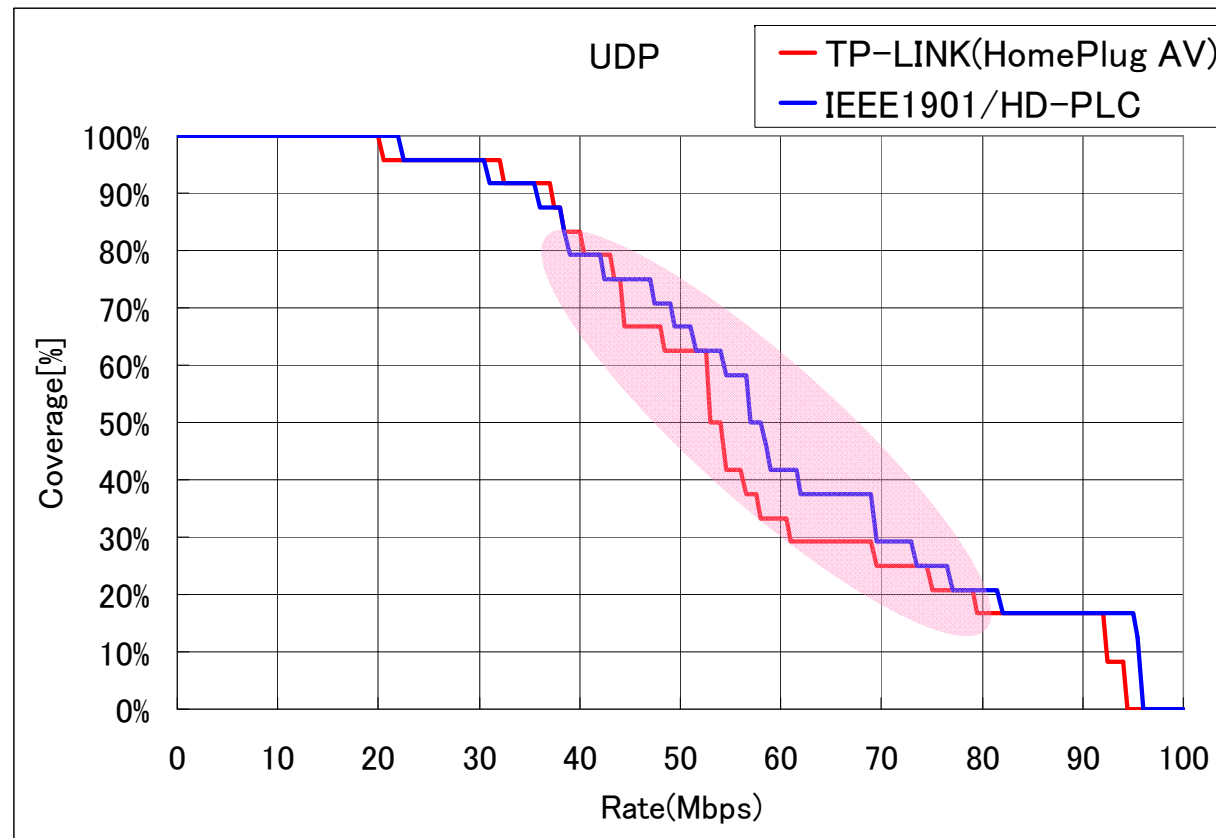
- ◆ Extension of Modulation until 32PAM
→ PHY Rate UP !
- ◆ Adoption of superior ECC (LDPC-CC)
→ Performance UP in worse environment !

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Evaluation test data : Data rate coverage

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IEEE1901/HD-PLC has faster and wider coverage than HomePlugAV



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ECO mode

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Low PHY rate but, Lower Power and Robustness communication for SmartGrid Application etc.

	HD-PLC	HD-PLC ECO
IEEE1901	Full support	Full support
Frequency Band	2-28MHz	2-28MHz
Maximum PHY Rate (Mbps)	240	16
Modulation	Wavelet OFDM	Wavelet OFDM
Primary Modulation (per subcarrier)	2-PAM, 4-PAM, 8-PAM, 16-PAM, 32-PAM	2-PAM, 4-PAM
Chipset Power with Low power AFE	0.40W	0.18W
Other		Interval access