

Mixed Microwave and Digital Multilayer PCB for High Density Applications

Printed circuit board for a transceiver module

operating at the microwave frequencies of **42 GHz**

for backhaul applications, satellite communication, WLAN, mobile networks (3G, 4G)

Innovations:

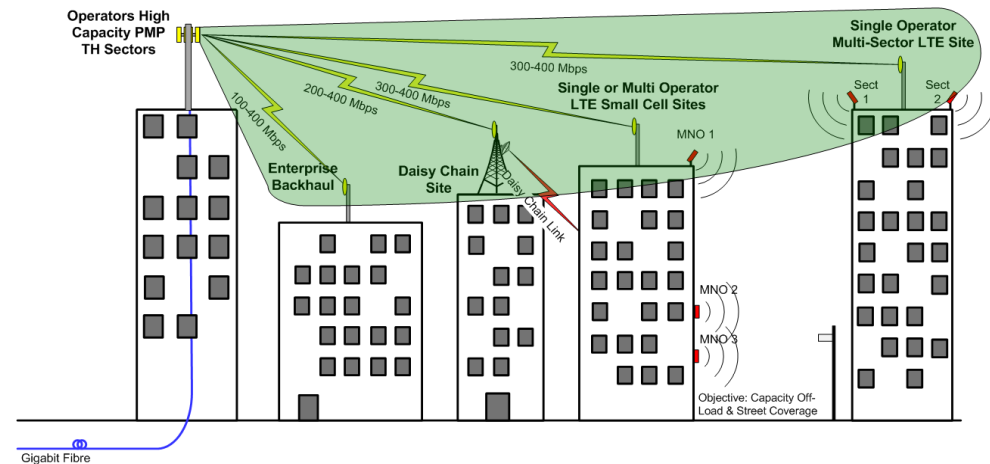
Board integration technology with

embedded integrated frequency filters

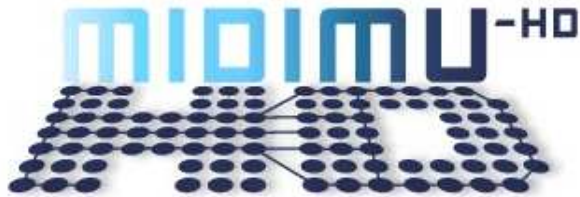
using organic low Dk/Df substrate material

Targets:

- specific market-pulled applications
- new design opportunities
- long-term reliability
- cost efficiency



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June 13th-15th, 2012



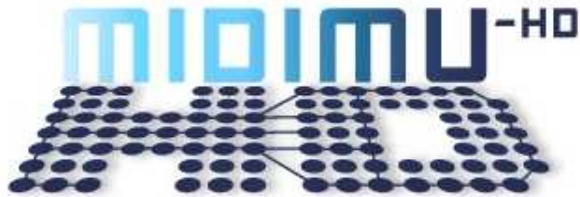
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Project Consortium: complementary skills and synergy

		The largest European PCB manufacturer
		Coordination & target applications (TCS) Testing expertise (TGS)
		Electronics testing lab
		High-frequency filter design
		Materials development and manufacturing
		Prototyping microwave PCBs
		Assembling expertise

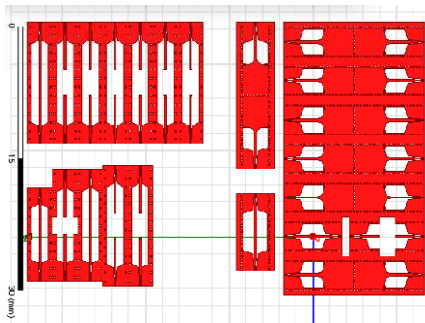
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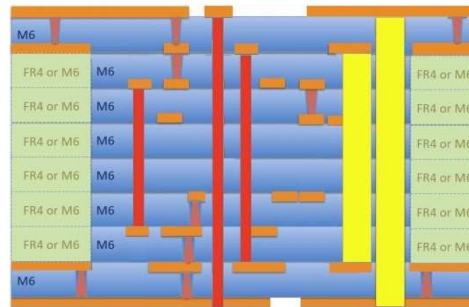
High-frequency filter



Materials line-up

012	102	...	VERNIS EPARGNE/SOLDER REPREF 401
011	112	...	FINITION/FINISHING REPREF 400
011	212	42.5 UM	CU BASE/BASE CU 17.5UM + RECHARGE/PLATING
011	312	90.0 UM	PREMPREGNE/PREPREG REPREF 200
011	412	42.5 UM	CU BASE/BASE CU 17.5UM + RECHARGE/PLATING
011	512	120.0 UM	PREMPREGNE/PREPREG REPREF 200
011	612	17.5 UM	BASE CU
011	712	150.0 UM	LAMINATE REPREF 200
011	812	17.5 UM	BASE CU
011	912	120.0 UM	PREMPREGNE/PREPREG REPREF 200
011	1012	17.5 UM	BASE CU
011	1112	150.0 UM	LAMINATE REPREF 200
011	1212	42.5 UM	CU BASE/BASE CU 17.5UM + RECHARGE/PLATING
012	202	...	FINITION/FINISHING REPREF 400
		...	VERNIS EPARGNE/SOLDER REPREF 401

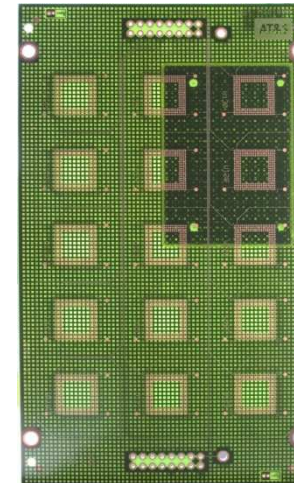
Board build-up



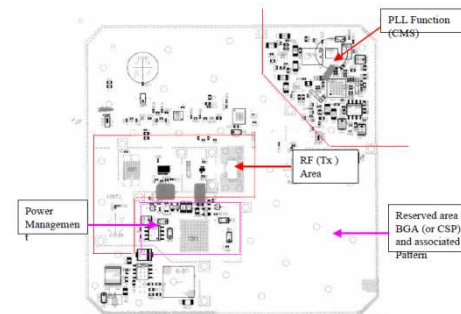
Transceiver board



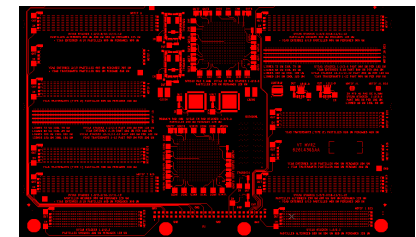
Integration concept: Board-in-Board



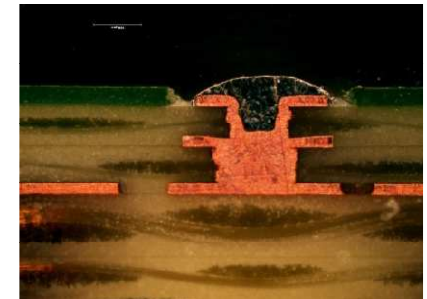
Application design



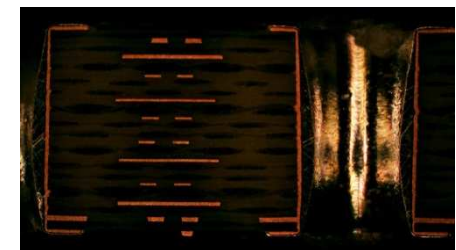
Qualification test vehicle



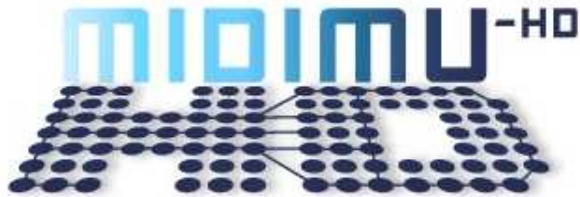
Cu-filled stacked μ -vias



PCB section after reflow

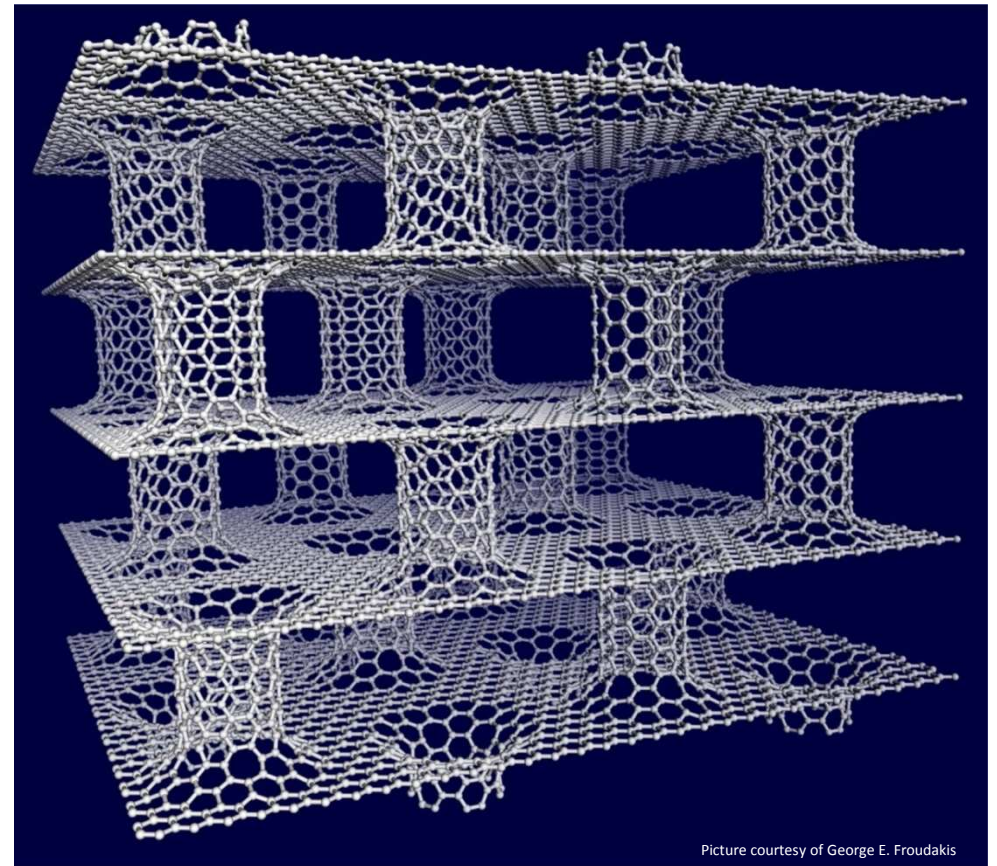


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**Any technical idea
a human can imagine
becomes reality**



Picture courtesy of George E. Froudakis