

Supporting Informations

Multilayer Functional Tapes Co-fired at 450 °C: Beyond HTCC and LTCC Technology

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Table S1 (a) Tensile strength of cast green tape with polycarbonate based binder system, (b) tensile strength of commercial DuPont 951 tape.

Table S1 (a)

Green tape ULTCC	Tensile Strength (Mpa) (±5%)
1	0.42
2	0.38
3	0.45
4	0.38
Average TS (MPa)	0.40
Standard deviation	0.02

Table S1 (b)

Green tape Dupont 951	Tensile Strength (Mpa) (±5%)
1	1.66
2	1.94
3	1.96
4	1.80
Average TS (MPa)	1.84
Standard deviation	0.14

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Table S2 The microwave dielectric properties of green single tape and 4 layer isostatic laminated tapes.

Green tapes	Microwave dielectric properties by SPDR technique			
	2.4 GHz		5.1 GHz	
	ϵ_r ($\pm 5\%$)	$\tan\delta$ ($\pm 10\%$)	ϵ_r ($\pm 5\%$)	$\tan\delta$ ($\pm 5\%$)
Single layer	12.8	0.07	12.5	0.08
4 Layer isostatic laminated tapes	19.7	0.08	19.1	0.09

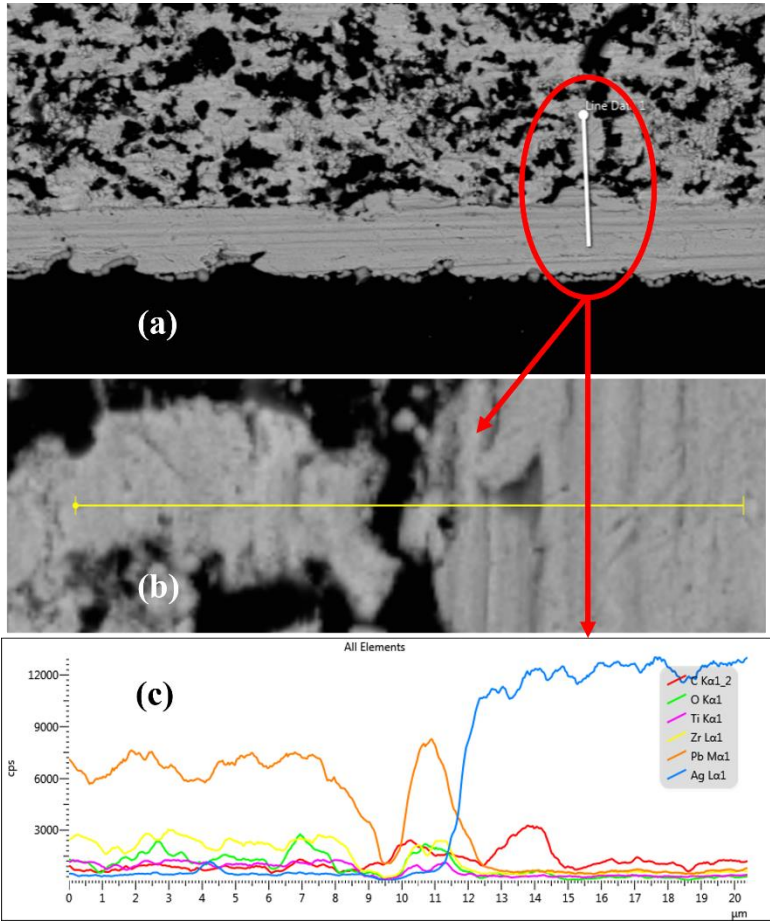


Figure S1 EDS line mapping of ULTCC-Ag interface

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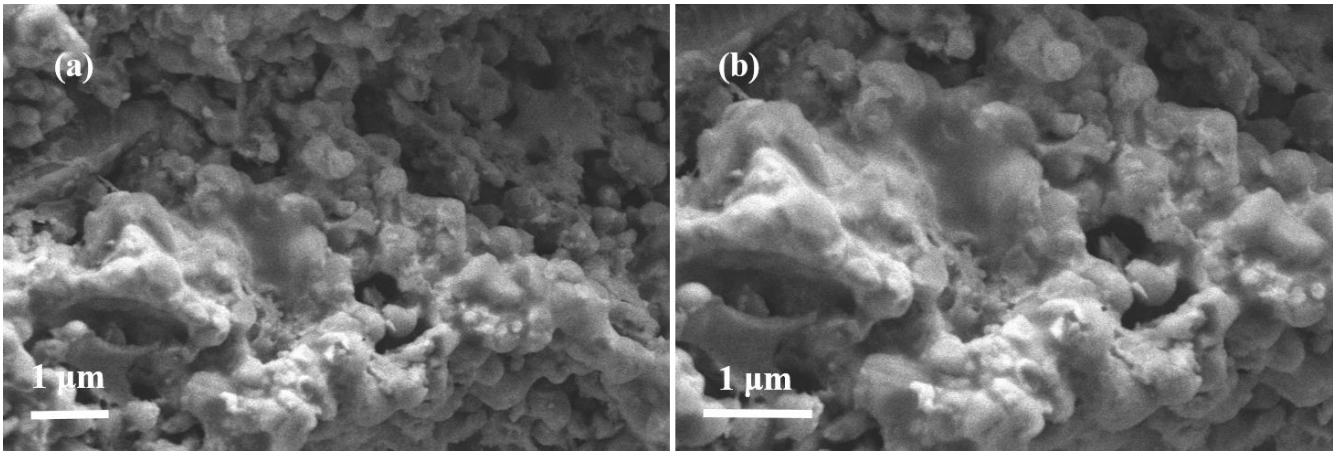


Figure S2 SEM microstructure of green tape surface (a) and (b) magnified image.

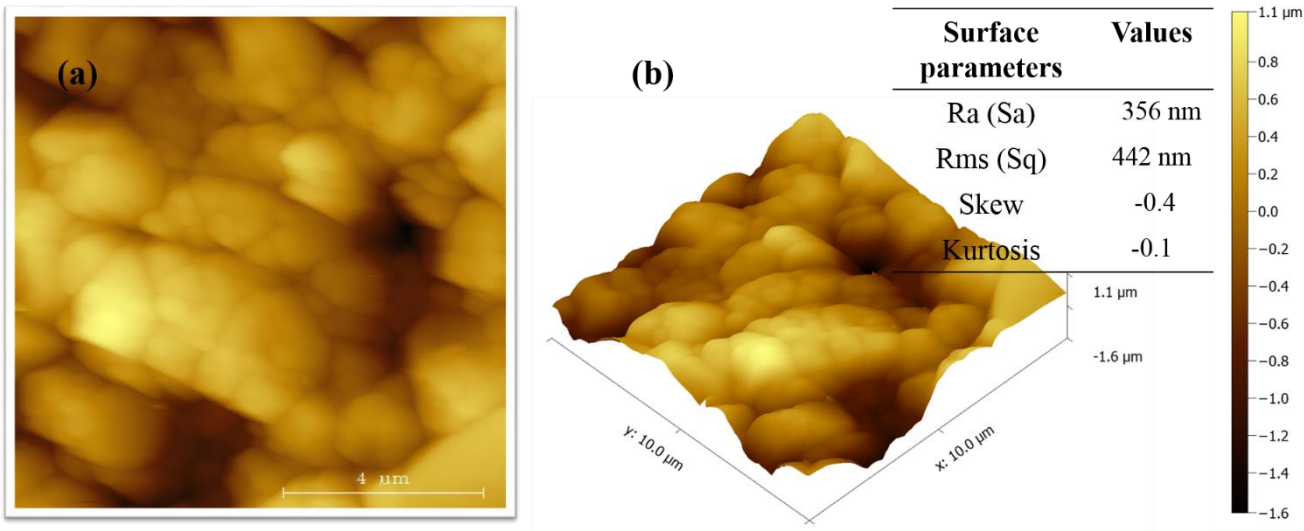


Figure S3 AFM image of (a) 2D and (b) 3D with inset table of surface parameters, of a sintered PZ29-glass.

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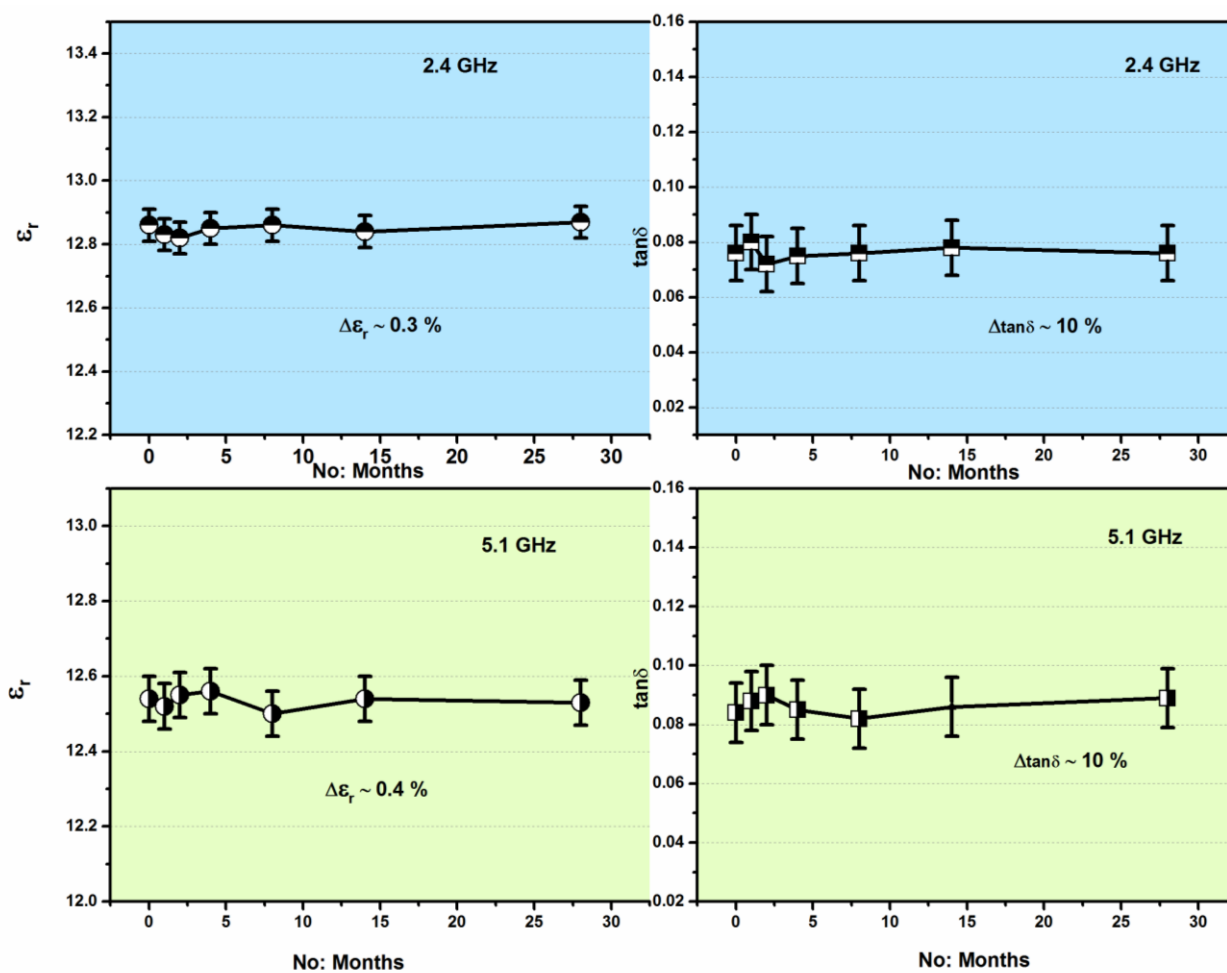


Figure S4 Ageing effect of microwave dielectric properties of ULTCC single layer green tape at 2.4 and 5.1 GHz.