

Supplementary Materials

Title: Comparative Feasibility of Transmission and Metal-Backed Microwave Architectures for Meter-Referenced Grain Moisture Monitoring.

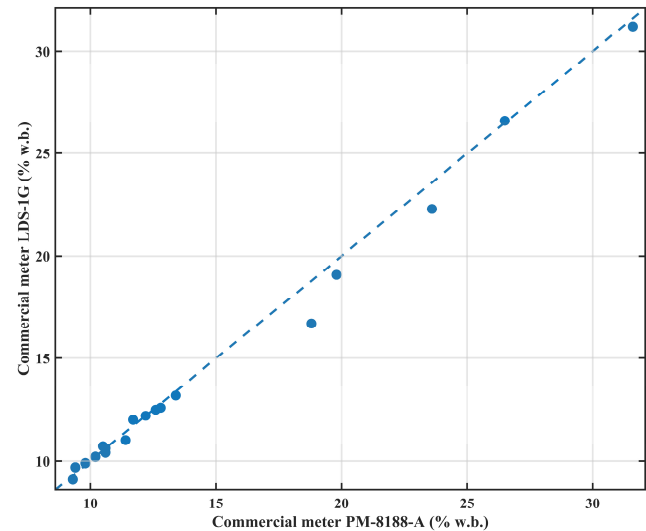


Figure S1. Scatter plot for consistency of two moisture meters.

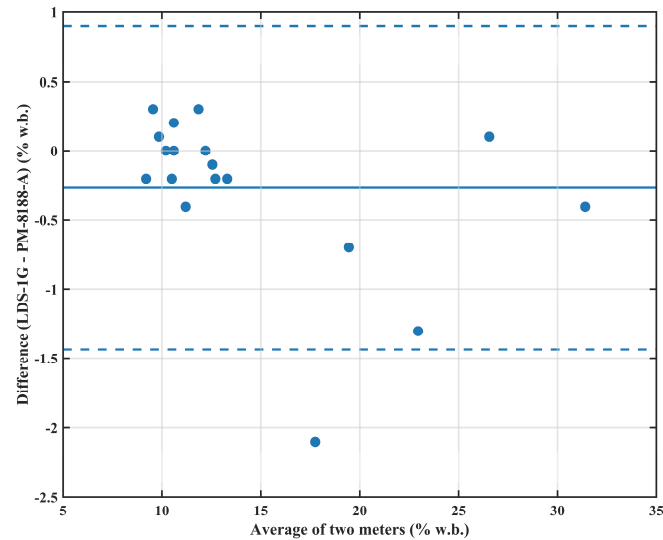


Figure S2. Bland–Altman plot for agreement analysis.

Table S1. VNA settings and measurement geometry.

Method	Sweep	IF bandwidth(Hz)	Output power (dBm)	Time-gating
Free-space transmission	401	300	-10	/
Metal-backed reflection	401	3000	-10	14.635-15.835

Note: Because the metal-backed configuration is greatly affected by external factors, the time-gating is used to reduce external interference.

Table S2. Shapiro–Wilk p-values of regression residuals.

Configuration	Grain	Predictor	Shapiro–Wilk p
Free-space	Maize	ε'	0.106
Free-space	Maize	ε''	0.043
Free-space	Wheat	ε'	0.759
Free-space	Wheat	ε''	0.040
Free-space	Mung bean	ε'	0.793
Free-space	Mung bean	ε''	0.881
Metal-backed	Maize	ε'	0.844
Metal-backed	Maize	ε''	0.459
Metal-backed	Wheat	ε'	0.181
Metal-backed	Wheat	ε''	0.078
Metal-backed	Mung bean	ε'	0.556
Metal-backed	Mung bean	ε''	0.116