

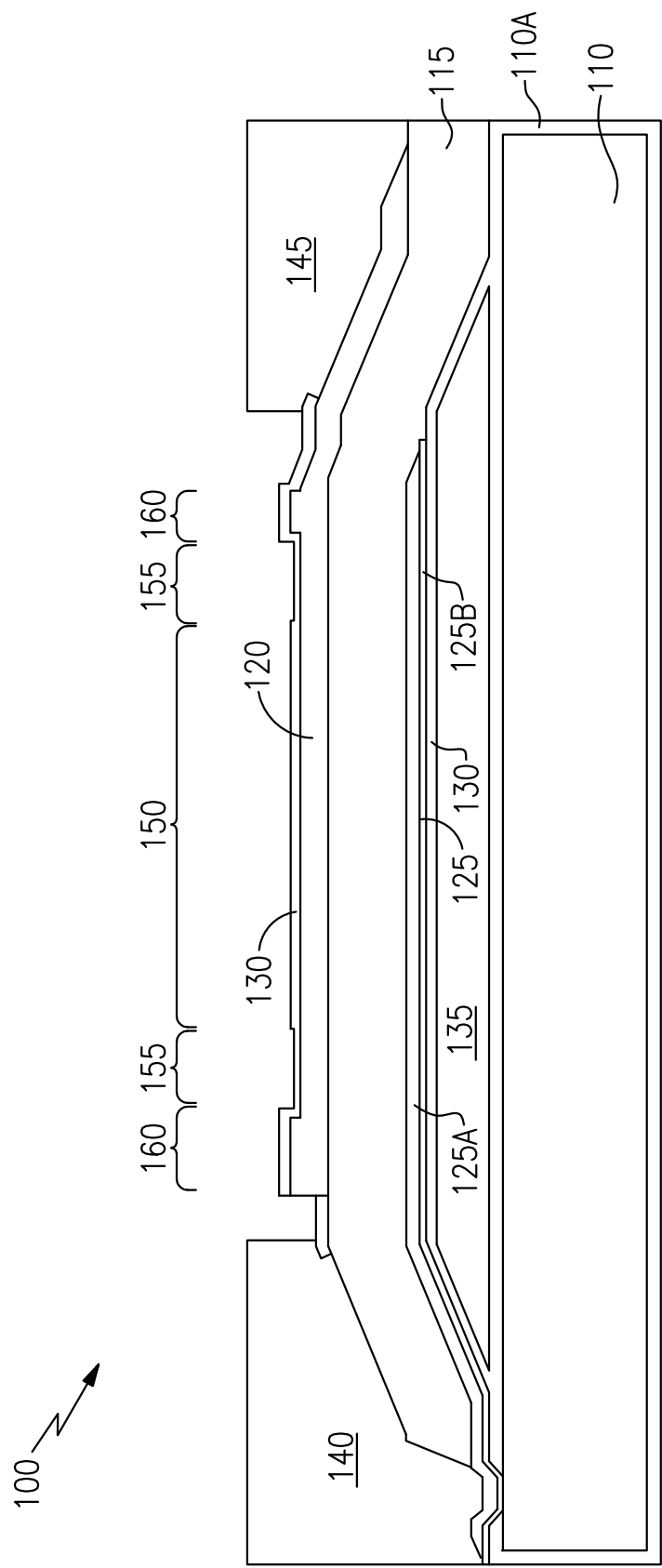


FIG.1

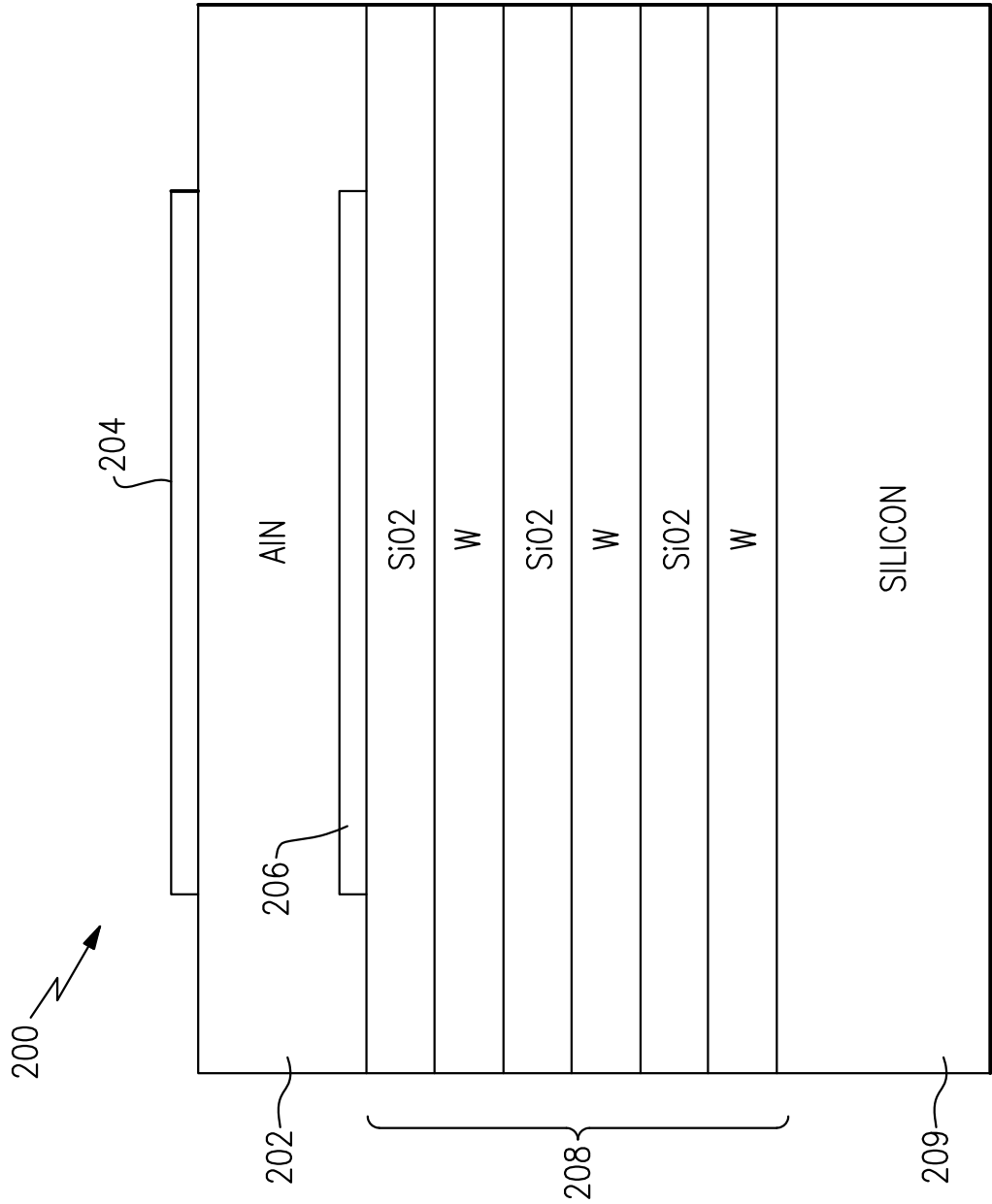
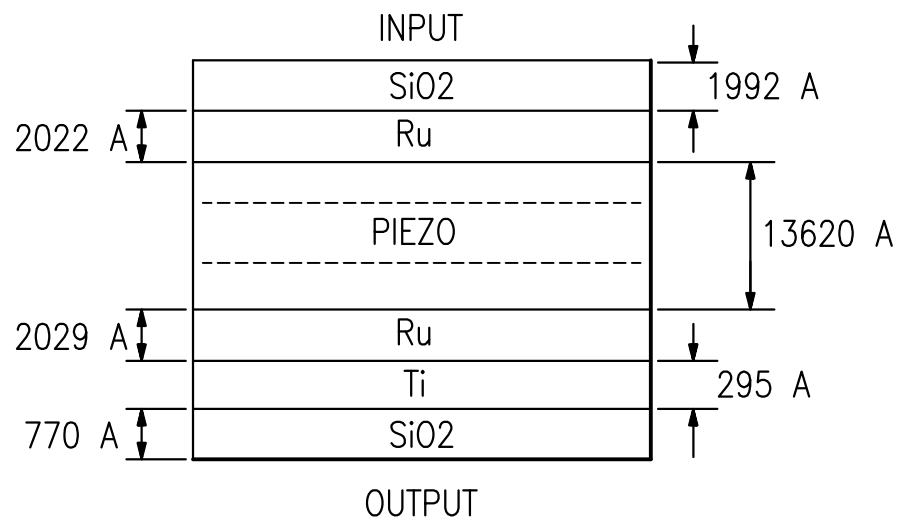


FIG. 2

**FIG.3A**

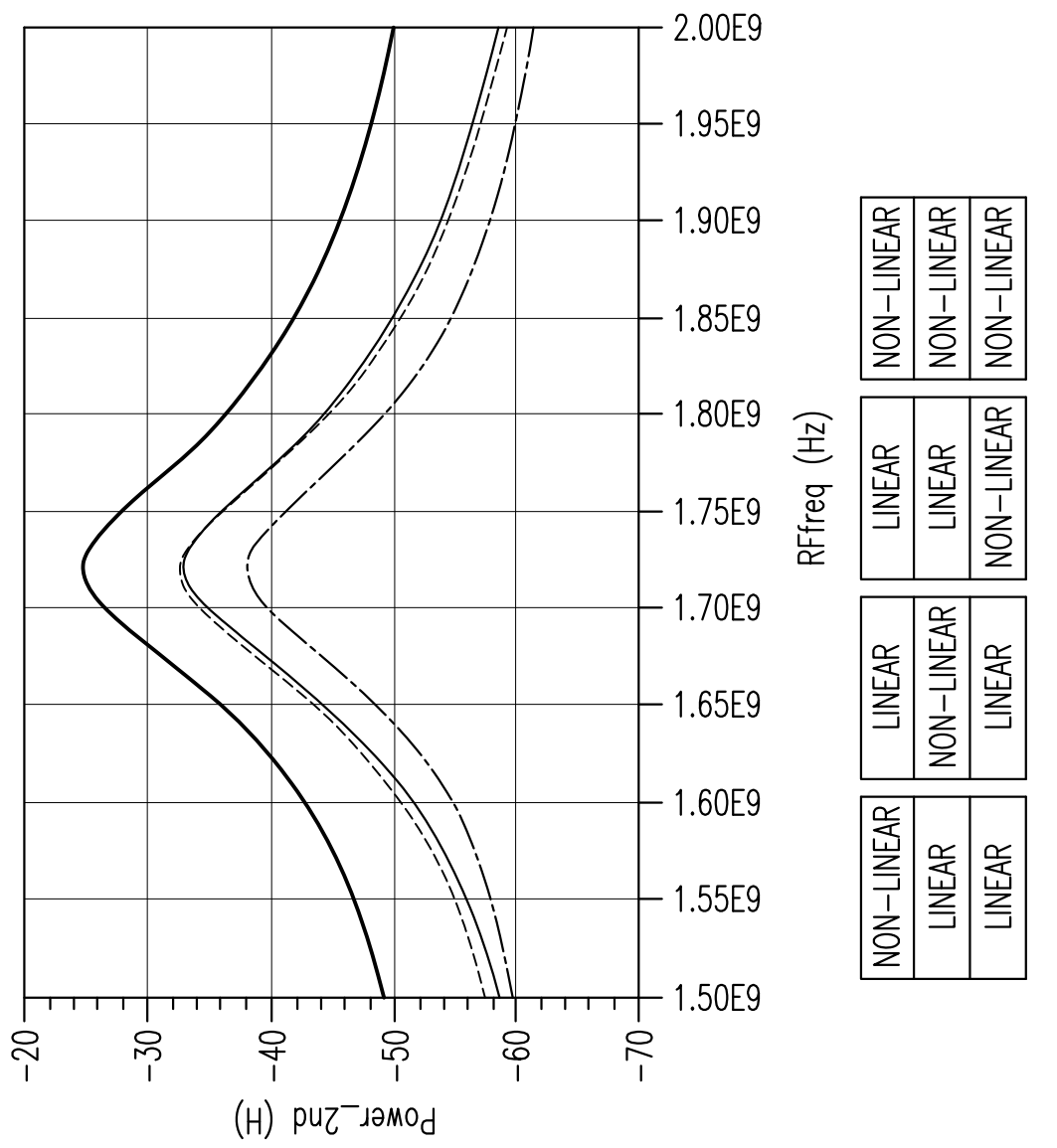


FIG. 3B

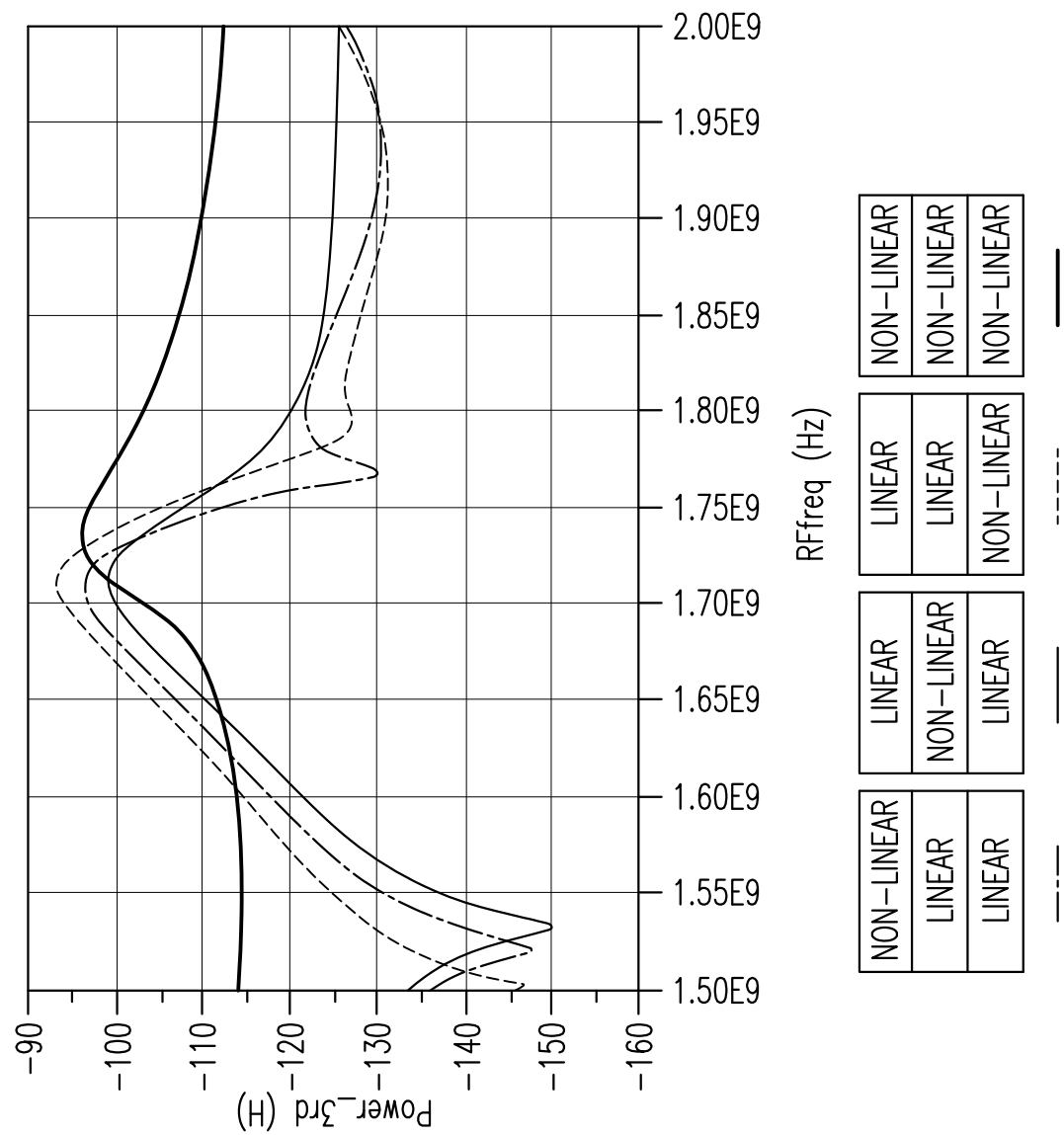


FIG.3C

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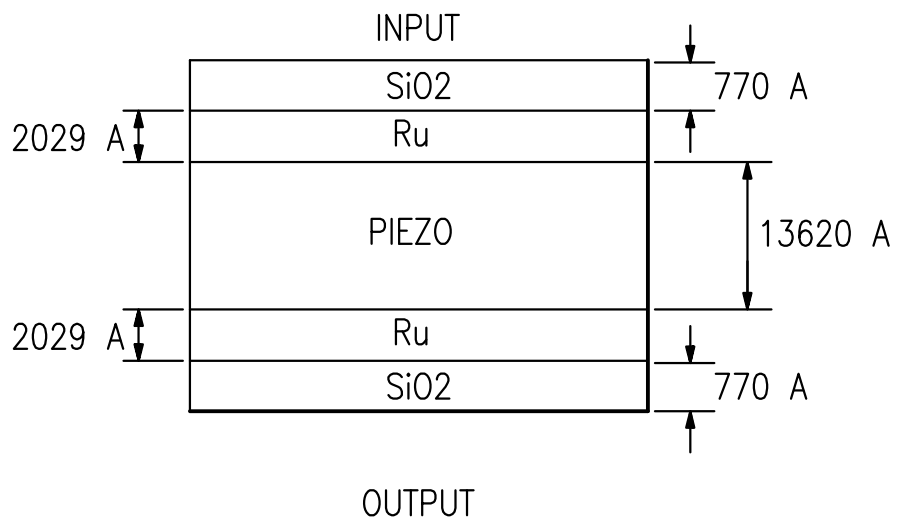


FIG.4A

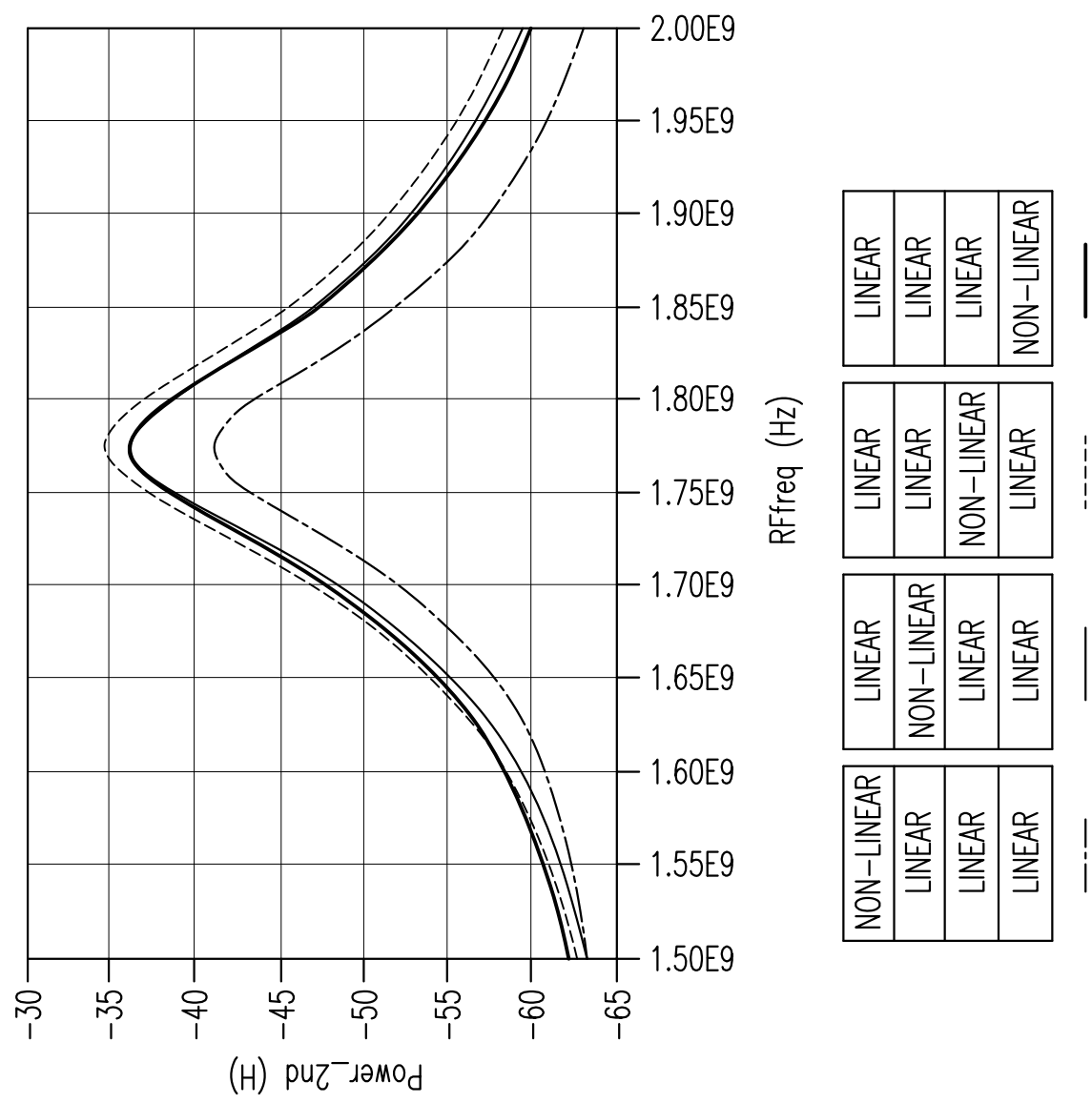


FIG.4B

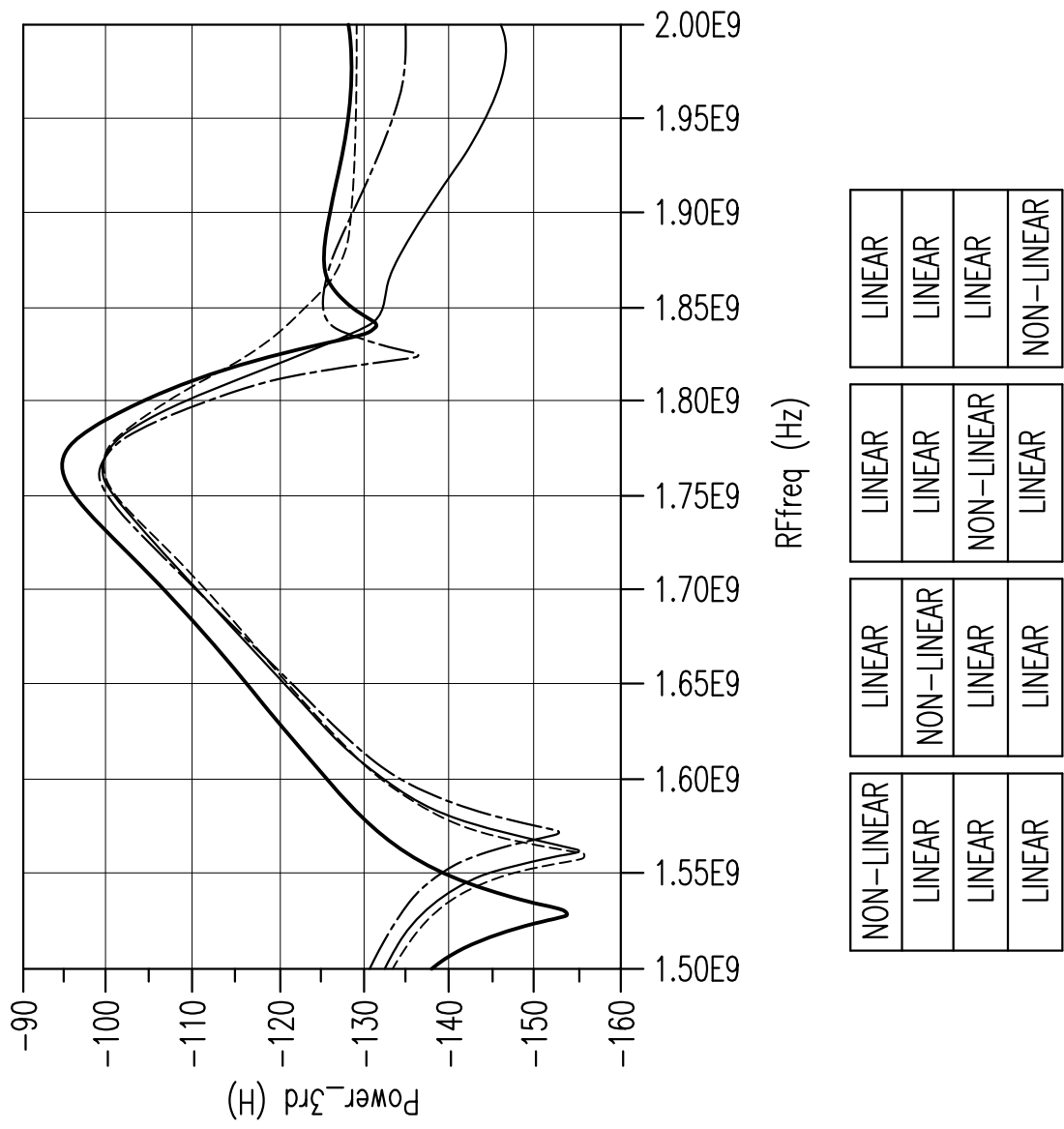


FIG. 4C

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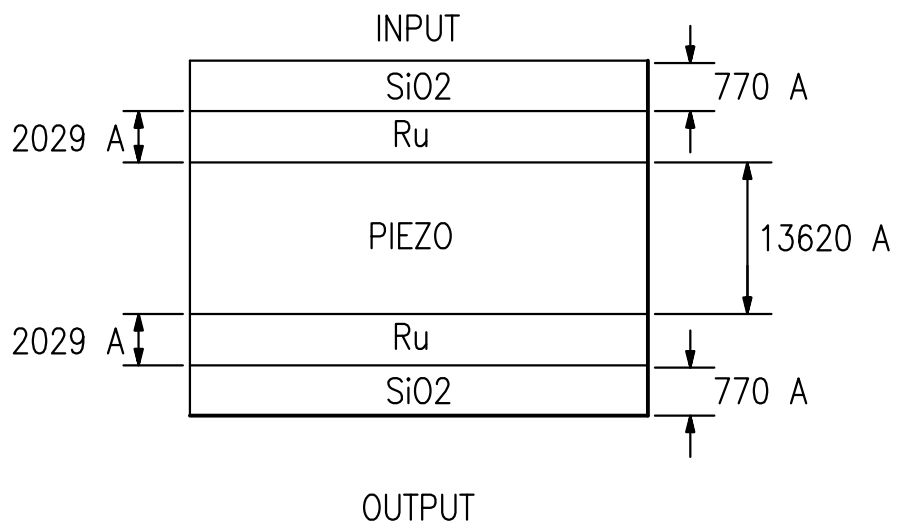


FIG.5A

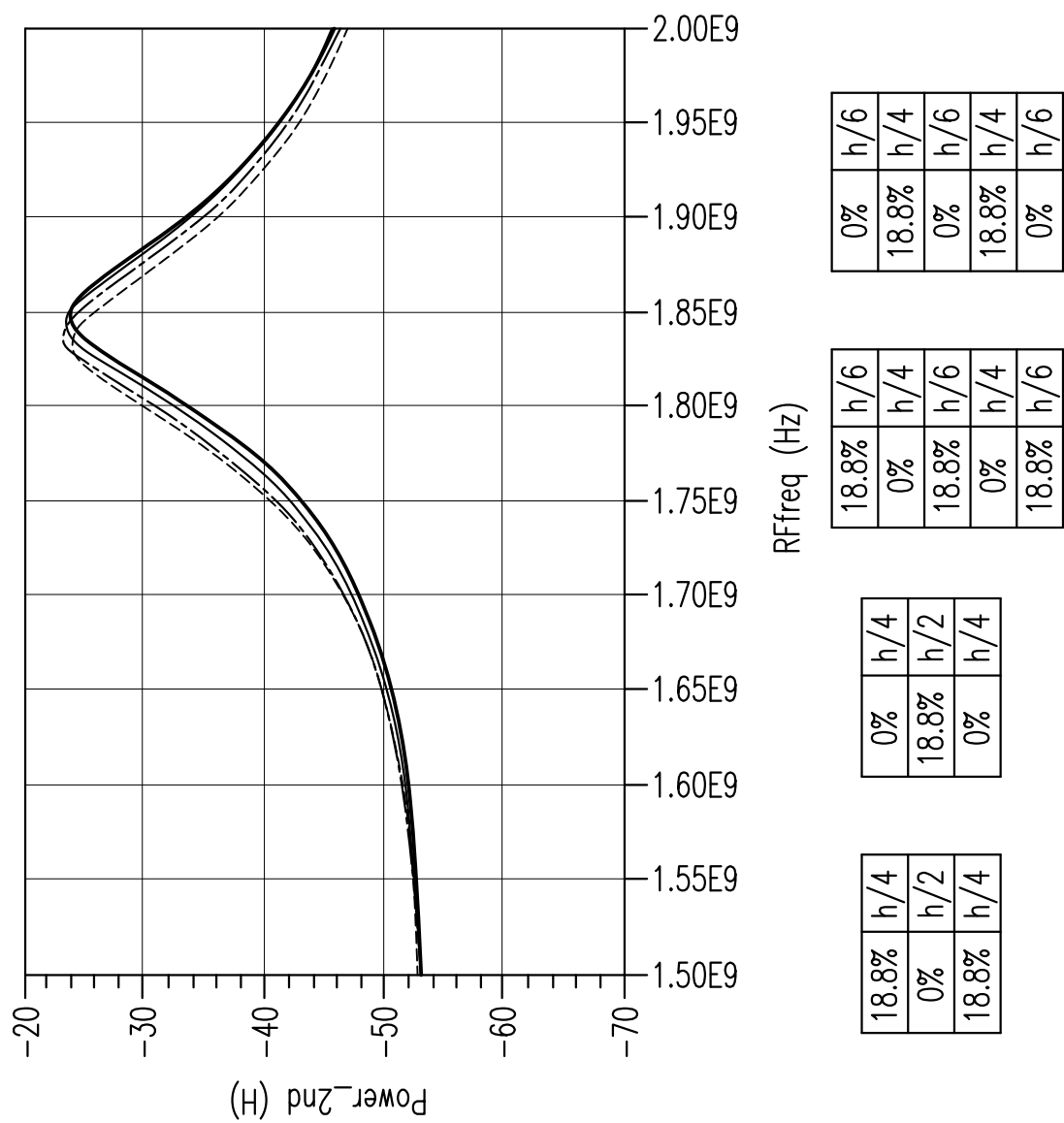


FIG.5B

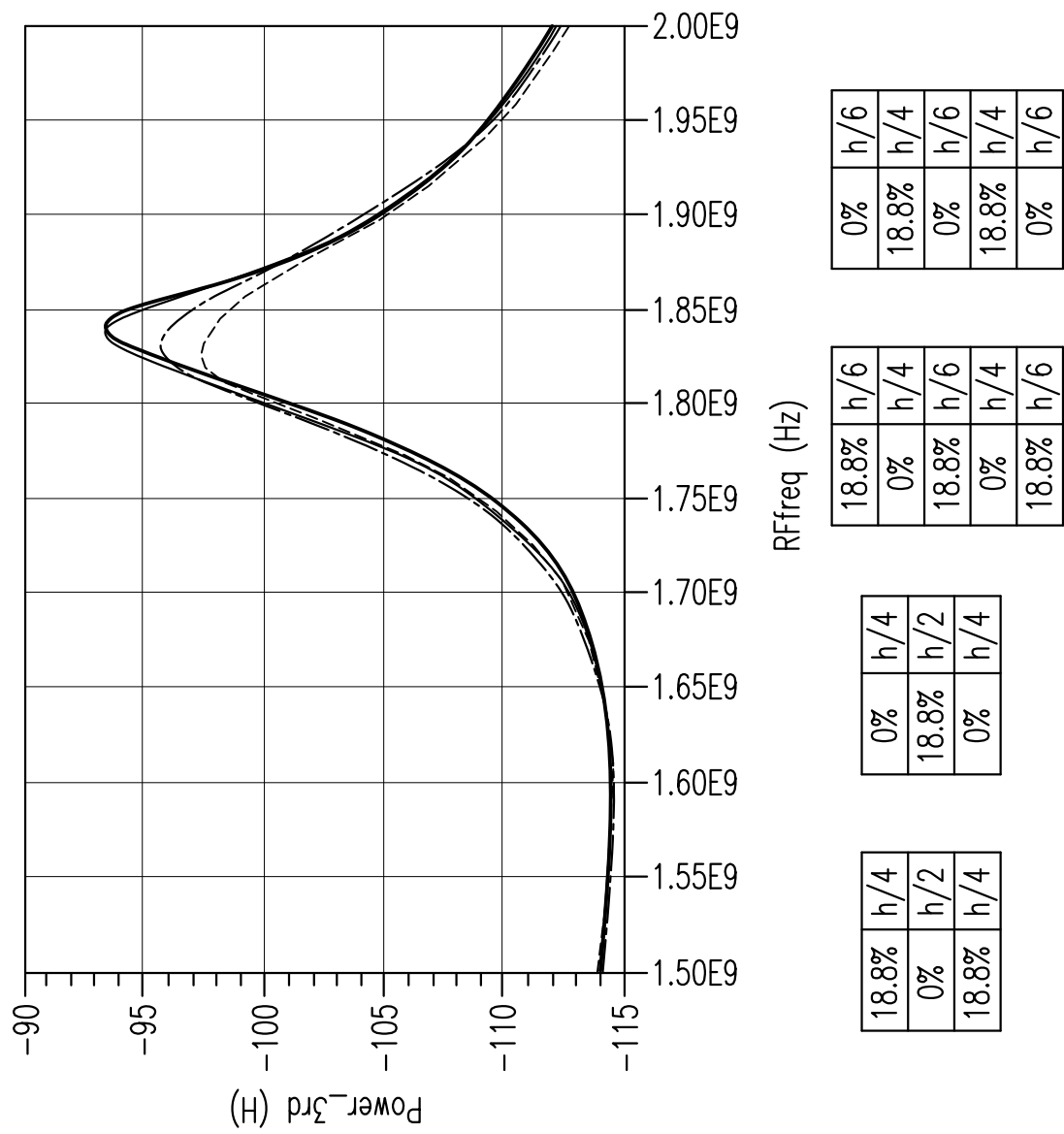


FIG.5C

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wafer#	AlScN (nm)			
	Total THK	Sc18.8% Ratio	Sc 0%	Sc18.8%
A	300	0%	300	x
B		25%	225	75
C		50%	150	150
D		75%	75	225
E		100%	0	300
F	600	0%	600	x
G		25%	450	150
H		50%	300	300
J		75%	150	450
K		100%	x	600
L	900	0%	900	x
M		25%	675	225
N		50%	450	450
P		75%	225	675
Q		100%	x	900

FIG.6A

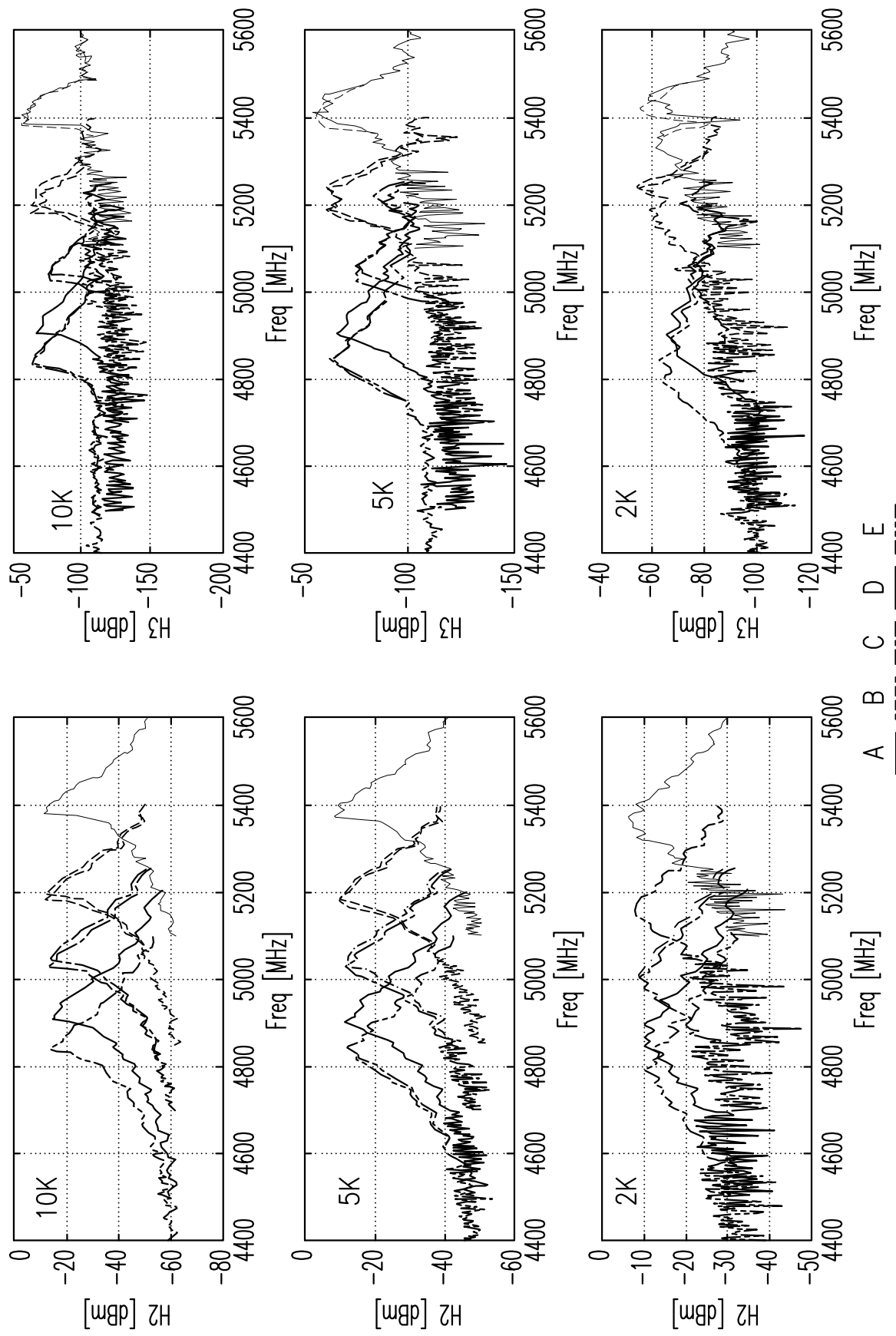


FIG.6B

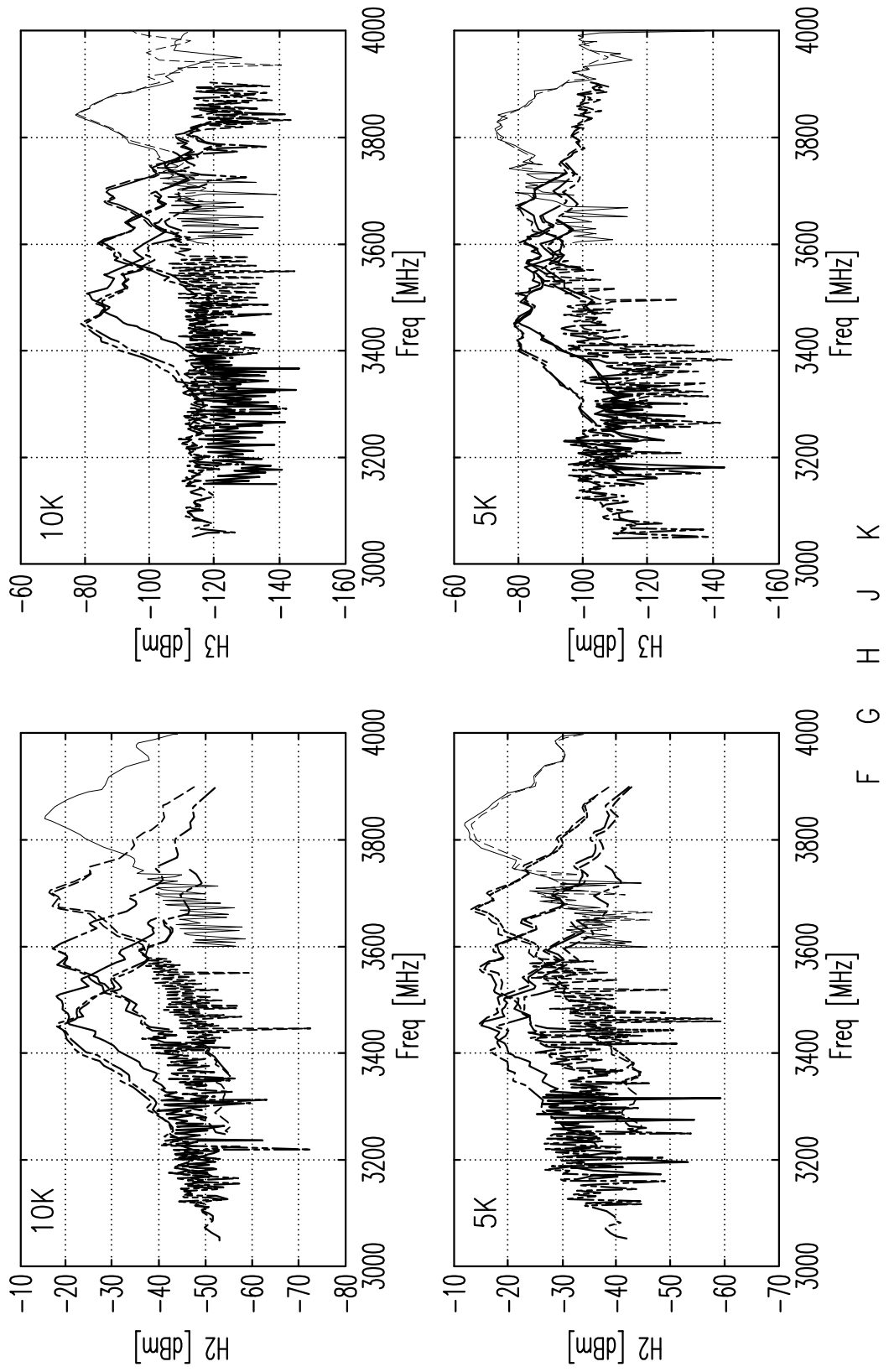


FIG.6C

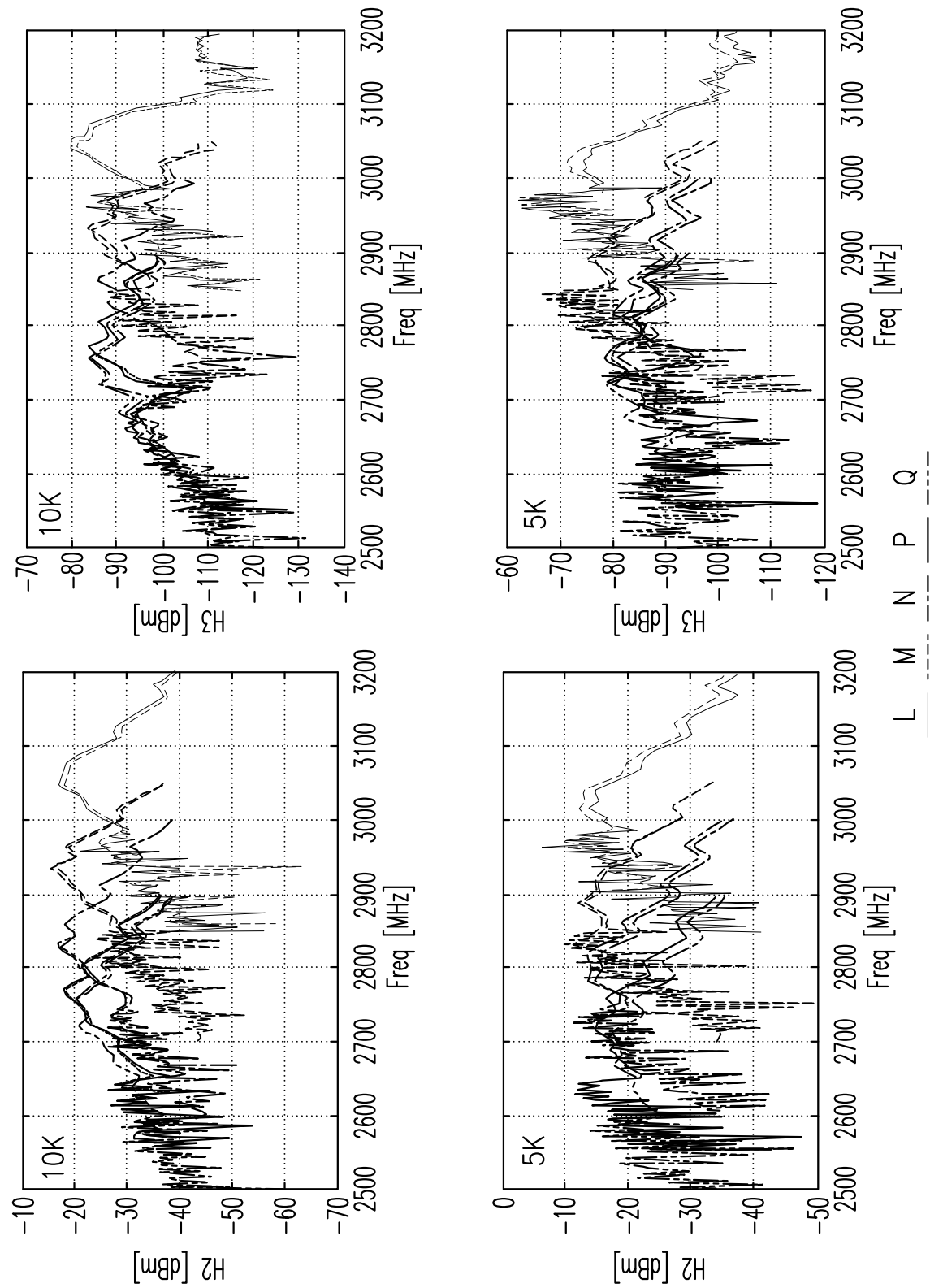


FIG.6D

wafer#	AlScN (nm)				
	Total THK	Sc18.8% Ratio	Sc 0%	Sc18.8%	Sc 0%
G	600	25%	450	150	x
H		50%	300	300	x
J		75%	150	450	x
R	600	25%	225	150	225
S		50%	150	300	150
T		75%	75	450	75

FIG.7A

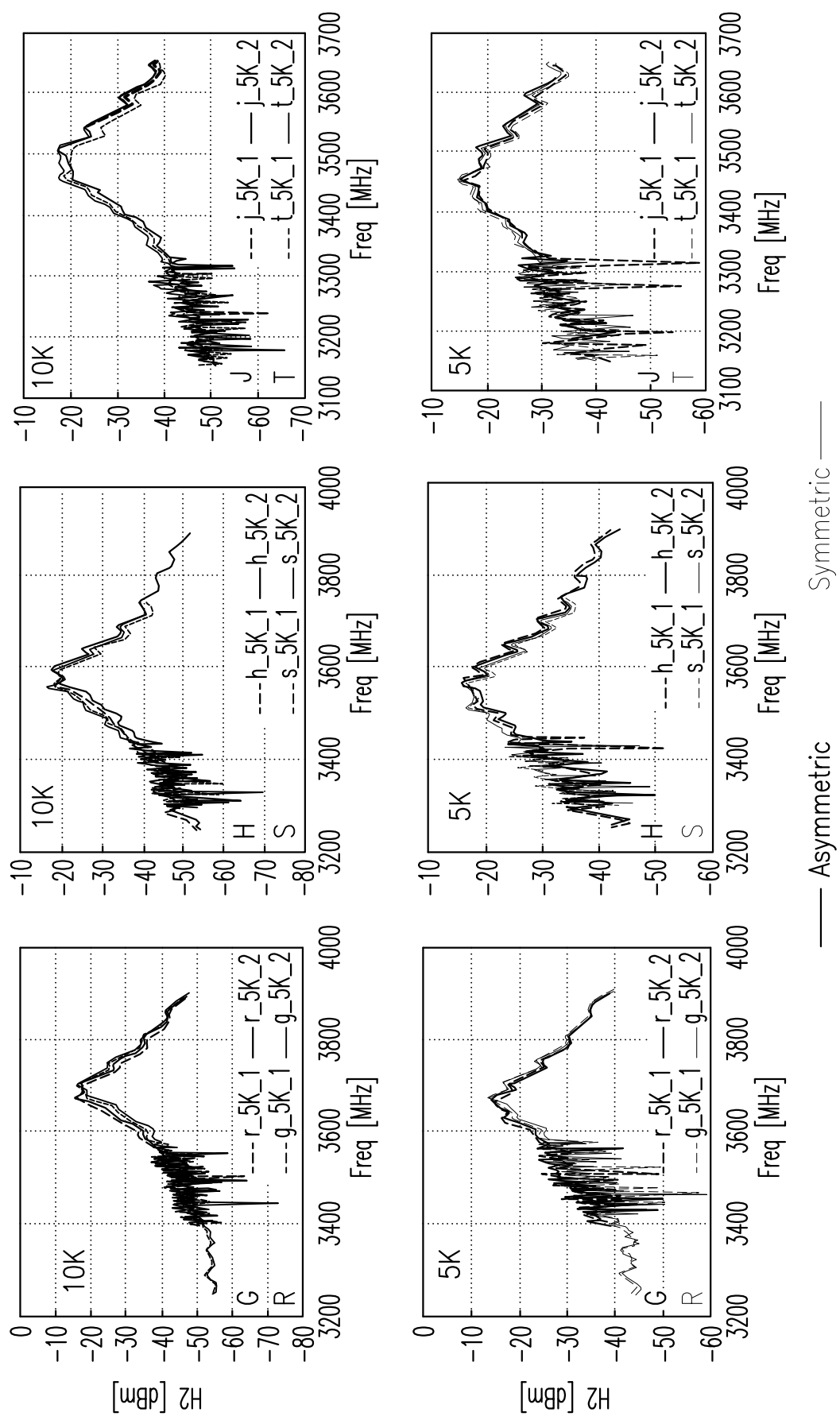


FIG.7B

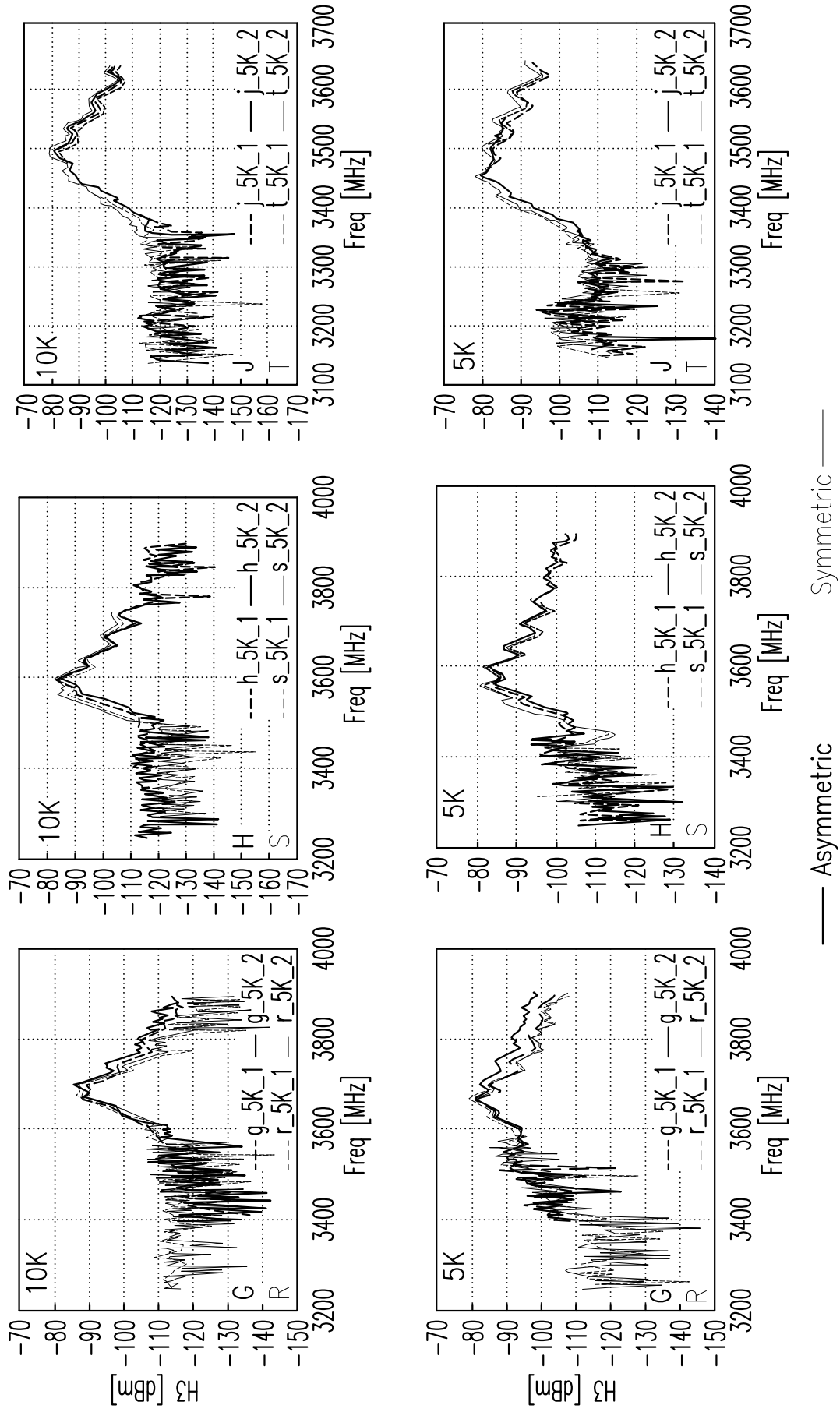


FIG.7C

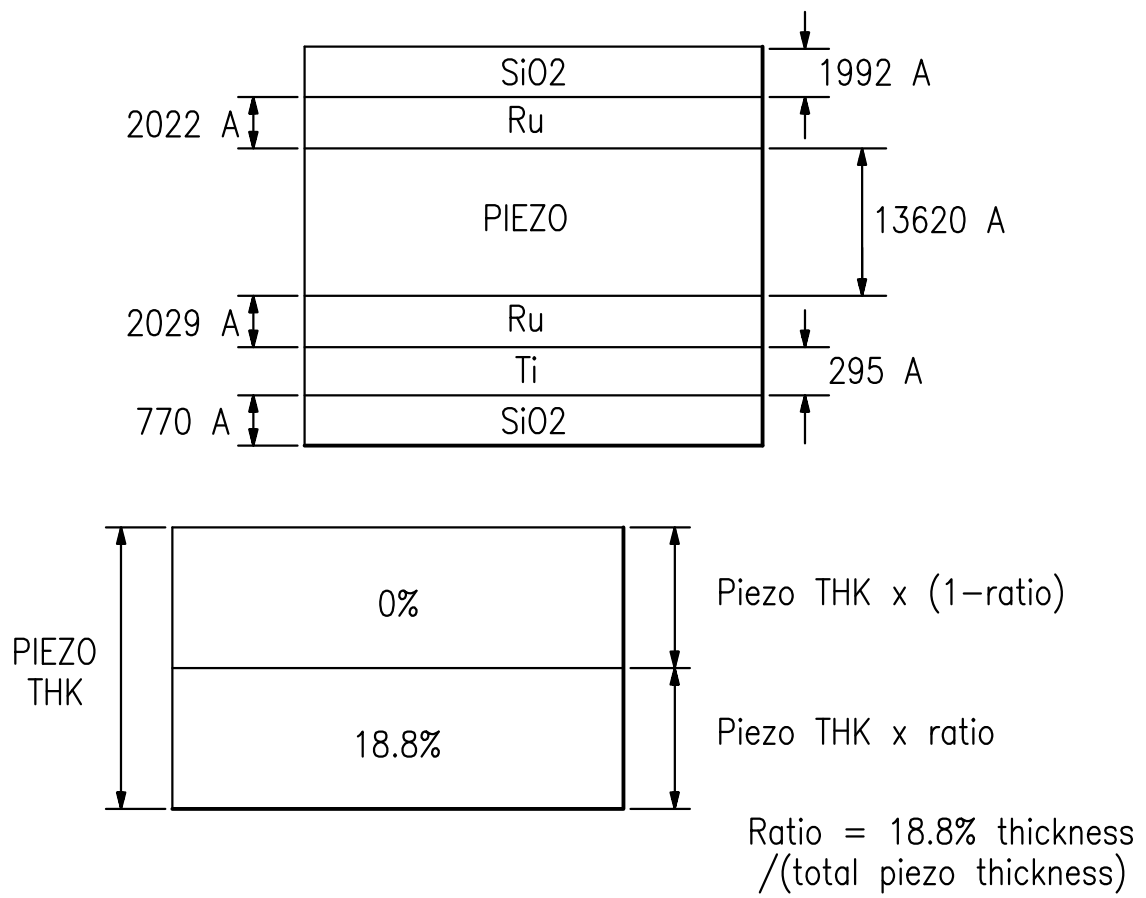


FIG.8A

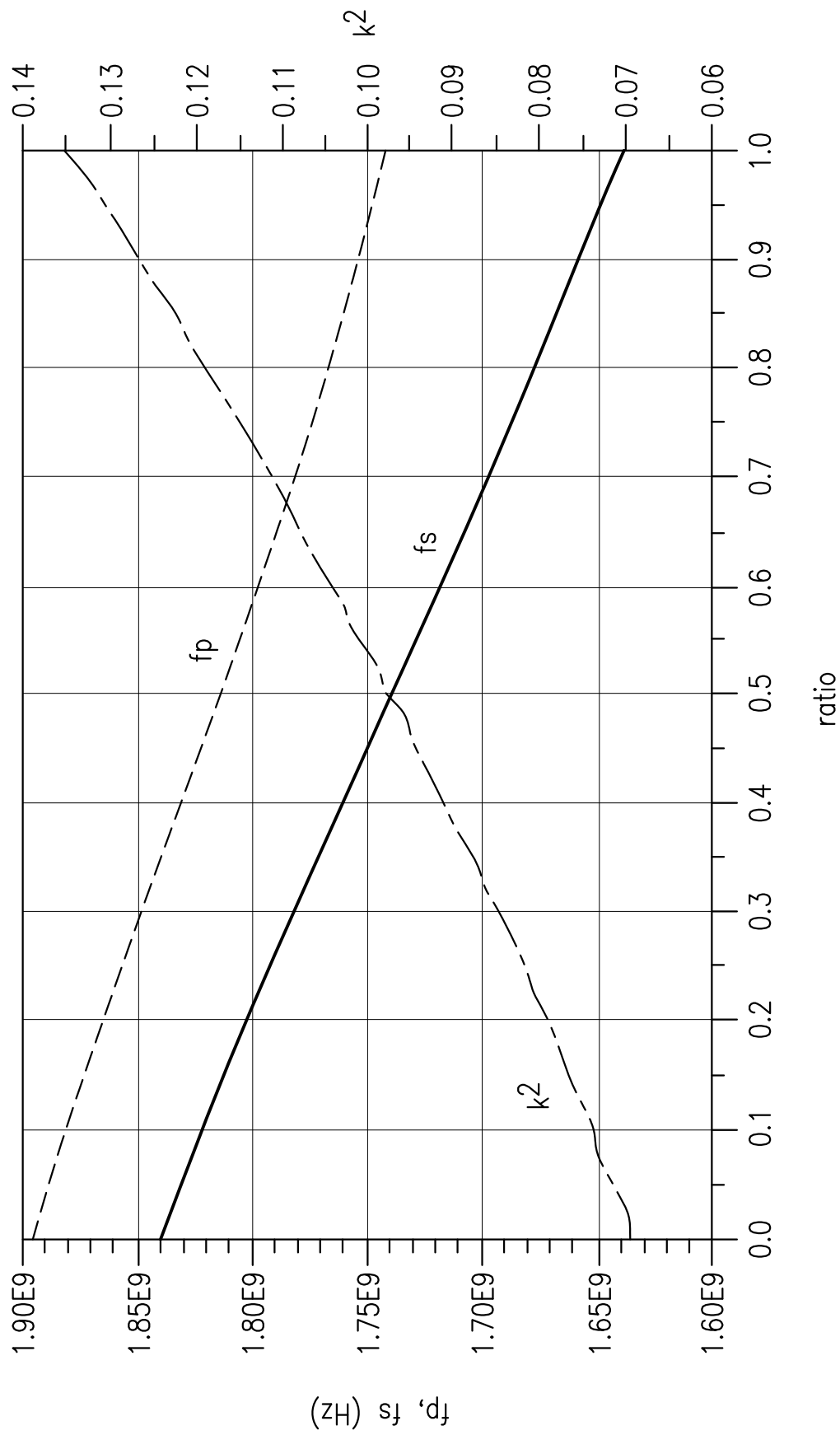


FIG.8B

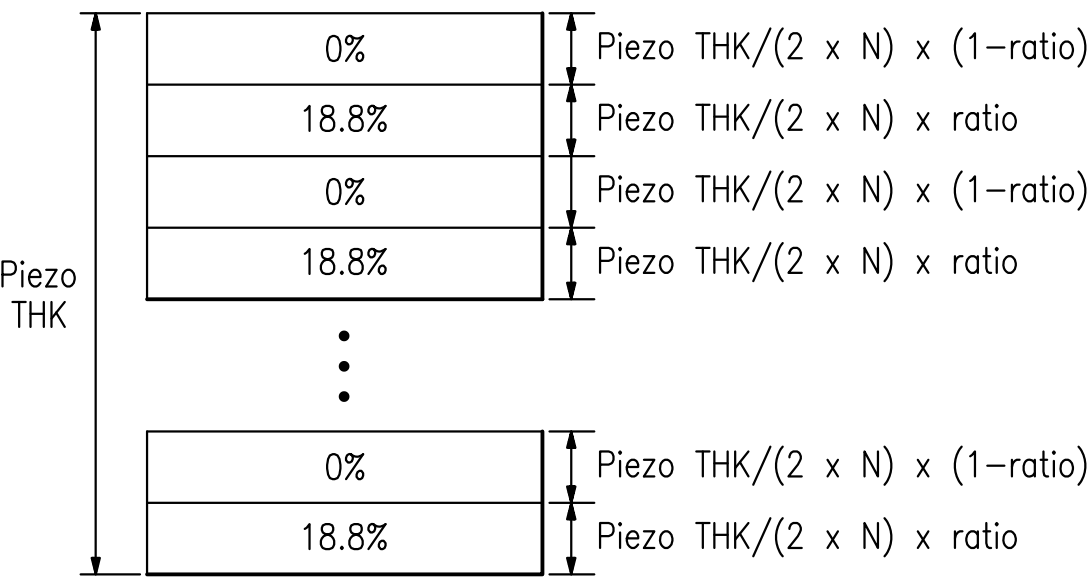


FIG.8C

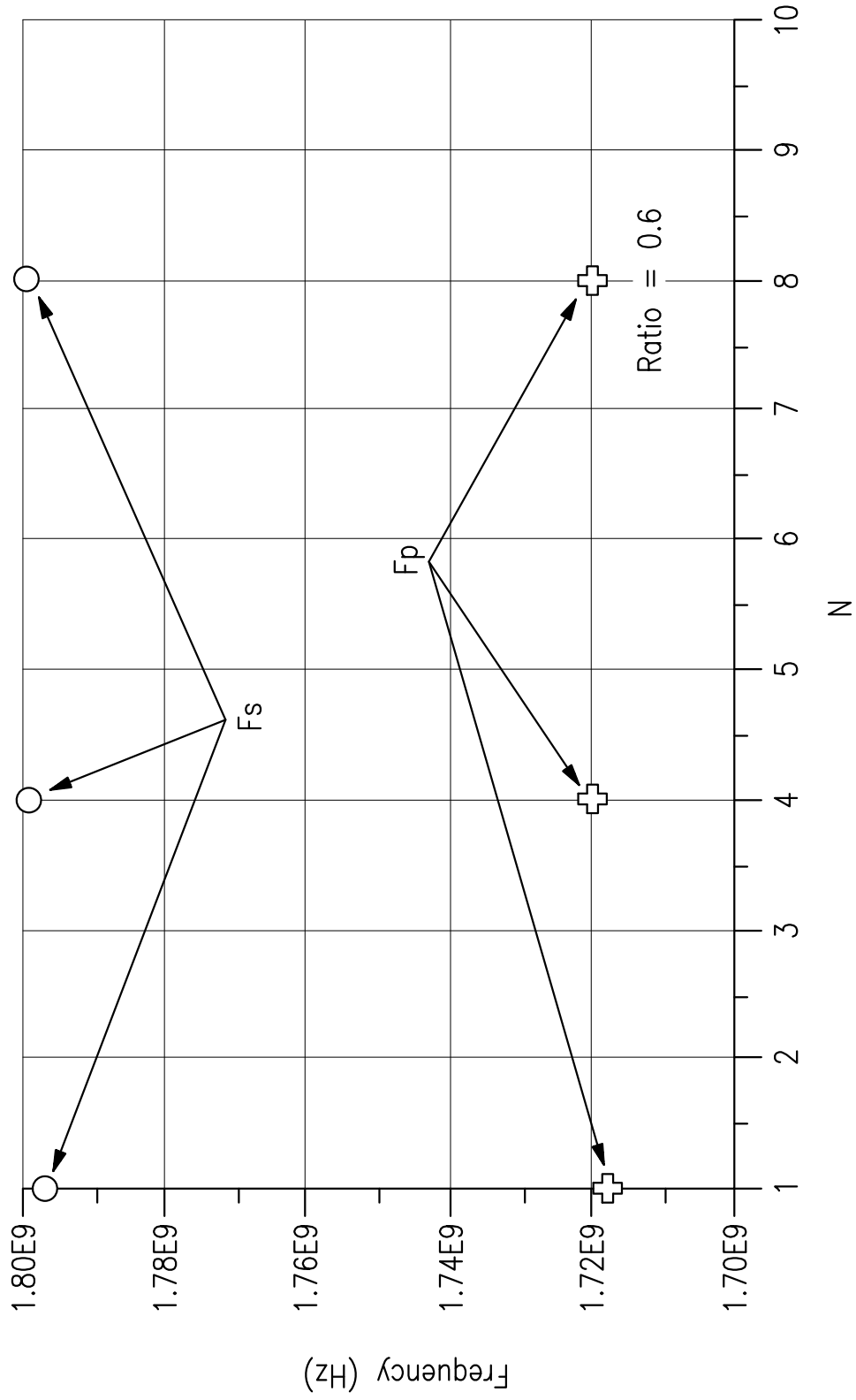
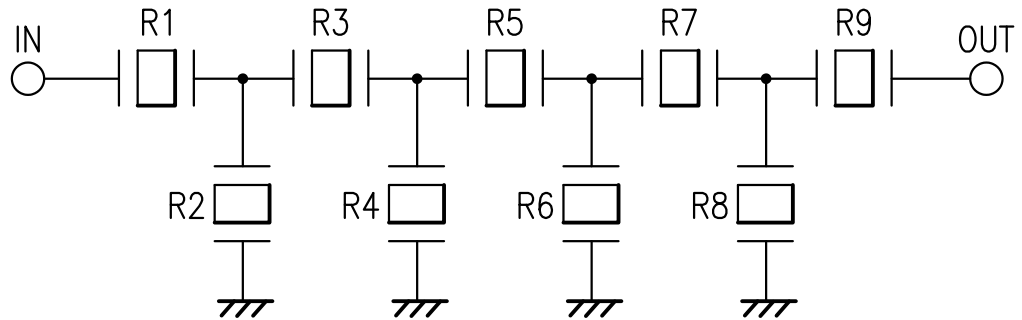
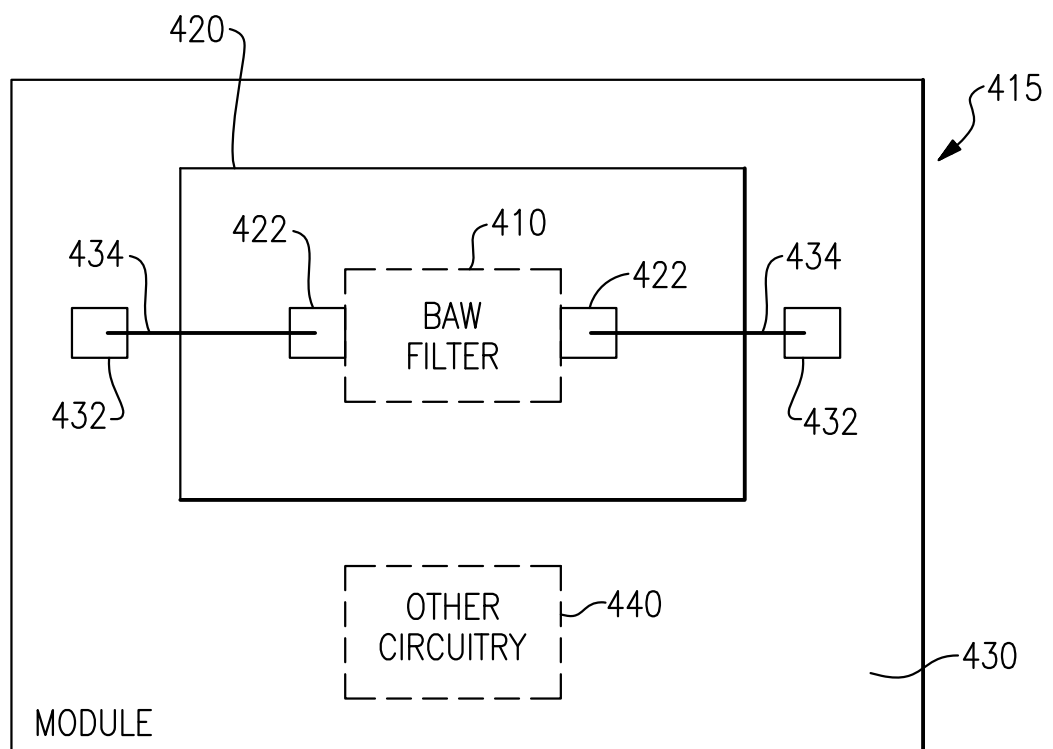
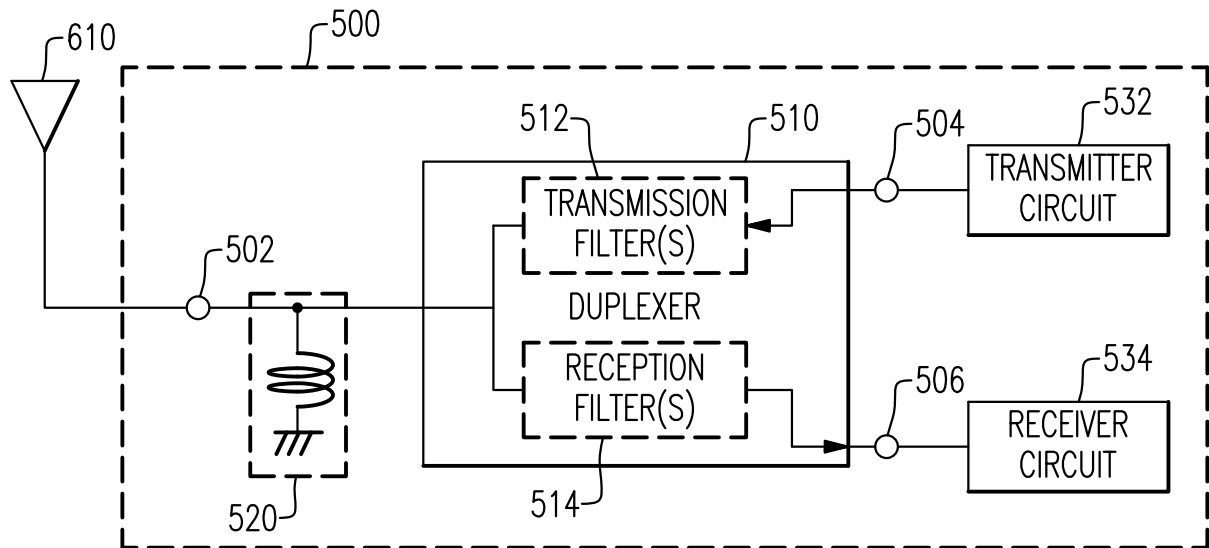
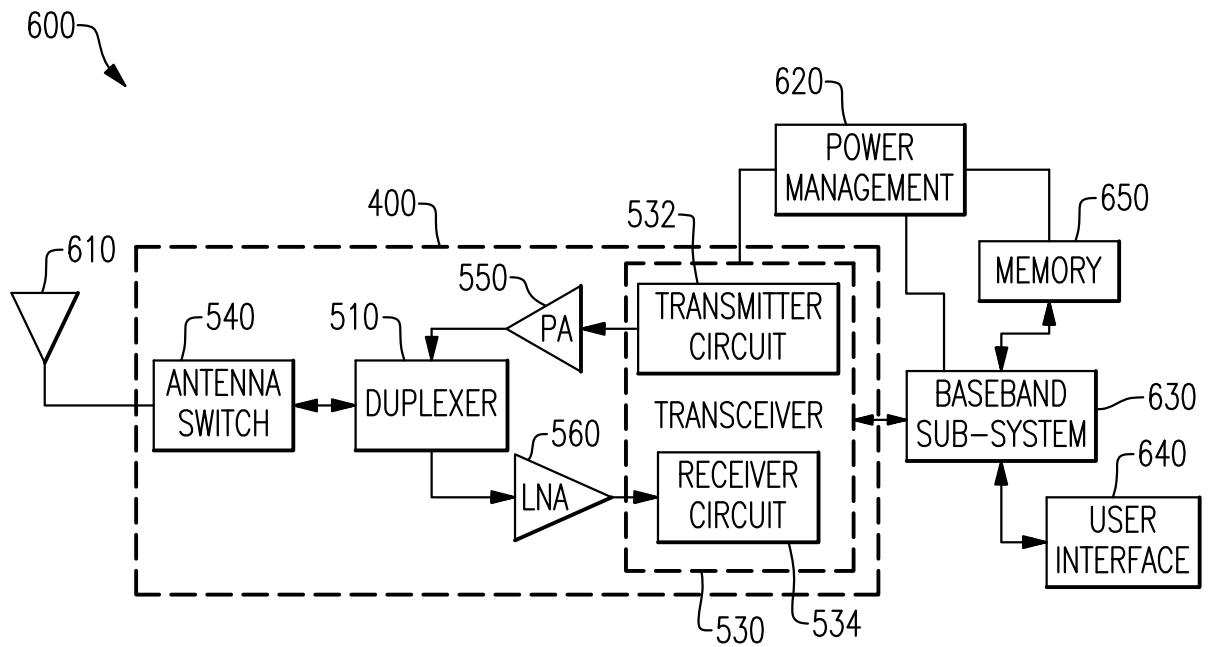


FIG.8D

**FIG.9****FIG.10**

**FIG. 11****FIG. 12**