

INTEL CORPORATION,

Petitioner

v.

TELEFONAKTIEBOLAGET L M ERICSSON (publ),

Patent Owner.

**PATENT OWNER DEMONSTRATIVE EXHIBITS
(NOT EVIDENCE)**

CLAIM 11

[11P] A method of reducing mutual electromagnetic coupling between *a first inductor and a second inductor on a semiconductor die*, comprising:

[11A] forming *the first inductor* to reduce a far field, said step of forming the first inductor comprising:

[11A.1] forming a first loop having a shape that is substantially symmetrical about a first predefined axis;

[11A.2a] forming a second loop having a size and shape substantially identical to the first loop; [11A.2b] orienting the second loop in relation to the first loop such that a magnetic field emanating from the second loop tends to cancel a magnetic field emanating from the first loop; and [11A.3] connecting two closely spaced terminals to the first loop for supplying electrical current to the first and second loops while minimizing magnetic field contributions from the terminals; and

[11B.1] positioning *a second inductor* at a predetermined distance from the first inductor, [11B.2] wherein the mutual electromagnetic coupling between *the first inductor* and *the second inductor* is reduced as a result of *the first inductor* having a reduced electromagnetic field.

Paper 2, Independent Claim Appendix, & EX1001, 10:61-11:15

Slide 1 -- PATENT OWNER DEMONSTRATIVE EXHIBITS – NOT EVIDENCE

SPECIFICATION REFERENCES SINGLE SEMICONDUCTOR

ABSTRACT

Method and system are disclosed for reducing mutual EM coupling between VCO resonators and for implementing the same *on a single semiconductor chip*. [EX1001, Abstract]

Paper 16, 12 (bold italics added)

SUMMARY OF THE INVENTION

An inductor design for reducing mutual EM coupling between VCO resonators and a method of implementing the same *on a single semiconductor chip*. [EX1001, 1:59-61]

Paper 16, 12 (bold italics added)

Slide 2 -- PATENT OWNER DEMONSTRATIVE EXHIBITS – NOT EVIDENCE

SUMMARY OF THE INVENTION

In general, in another aspect, a method of *reducing mutual electromagnetic coupling between two inductors on a semiconductor die* comprises the step of forming a first inductor on the semiconductor die having a shape that is substantially symmetrical about a first predefined axis, the shape causing the first inductor to have a reduced far field, at least in some directions. The method further comprises the step of *forming a second inductor on the semiconductor die at a predetermined distance from the first inductor*, wherein a mutual electromagnetic coupling between the first inductor and the second inductor is reduced as a result of the first inductor having a reduced far field. [EX1001, 2:13-24]

Paper 16, 11 (bold italics added)

Slide 3 -- PATENT OWNER DEMONSTRATIVE EXHIBITS – NOT EVIDENCE

**Comparison of Claim 11 preamble and the preamble
in *TomTom, Inc. v. Adolph*, 790 F.3d 1315 (Fed. Cir. 2015).**

Claim 11 Preamble	<i>TomTom</i> Preamble
“method of reducing mutual electromagnetic coupling between [“the <i>reducing language</i> ”] <i>a first inductor and a second inductor on a semiconductor die</i> ” EX1001, 10:61-63	“method for generating and updating data for use in [(“the <i>generating language</i> ”)] <i>a destination tracking system of at least one mobile unit</i> ” <i>TomTom</i> , 790 F.3d at 1322

Paper 25, 3-4

Slide 4 -- PATENT OWNER DEMONSTRATIVE EXHIBITS – NOT EVIDENCE

'430 PATENT FIG. 7

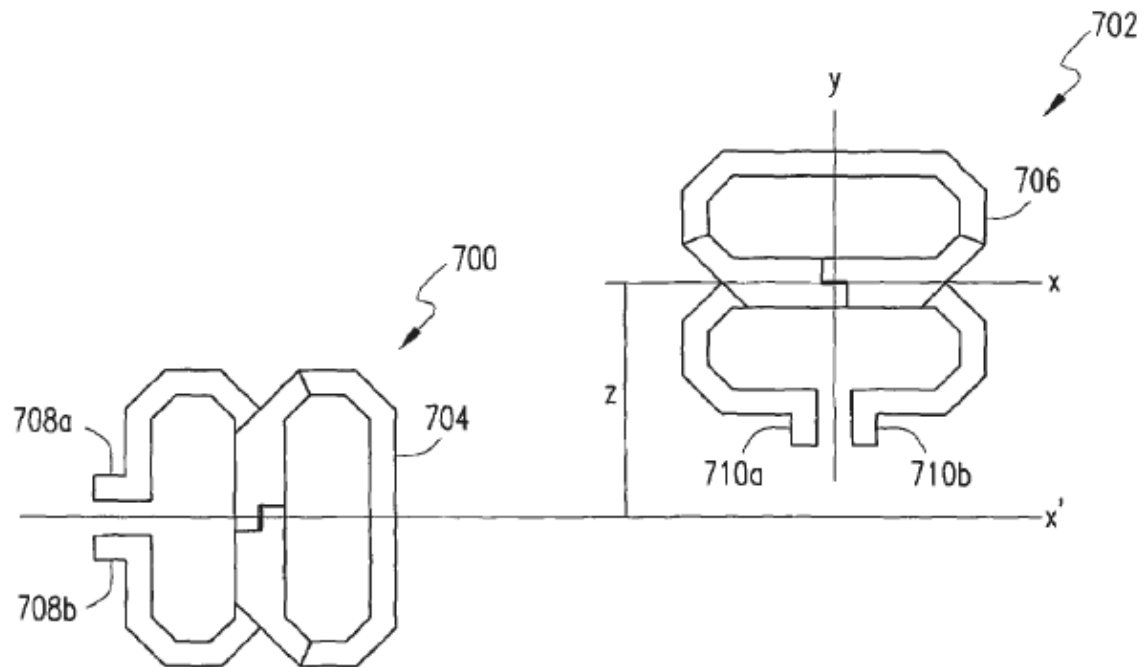
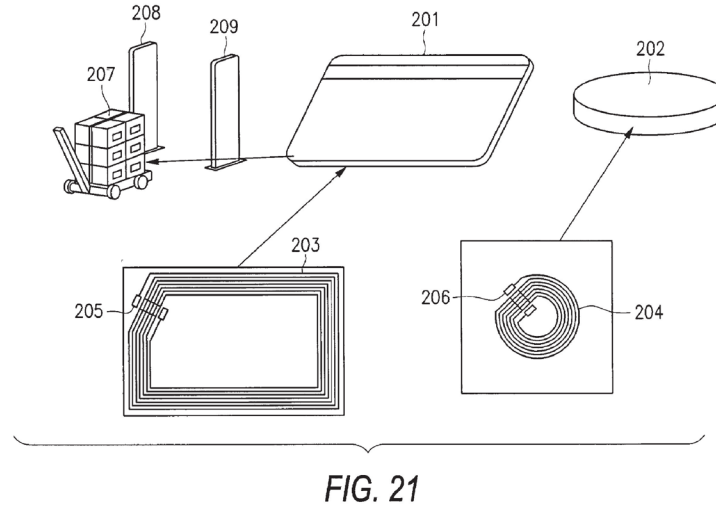
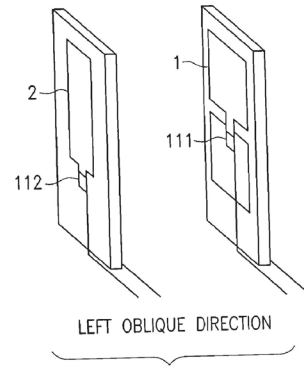
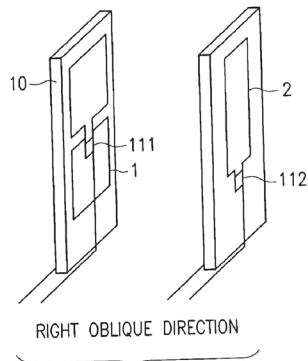


FIG. 7

Paper 16, 35 & EX1001, FIG. 7

Slide 5 -- PATENT OWNER DEMONSTRATIVE EXHIBITS – NOT EVIDENCE

TANIGUCHI FIGS. 13 & 21



Paper 16, 29 (FIG. 21) & Paper 19, 15 (FIG. 13A, 13b) & EX1005, FIGS. 13A-B & 21

Slide 6 -- PATENT OWNER DEMONSTRATIVE EXHIBITS – NOT EVIDENCE

TANIGUCHI FIG. 3

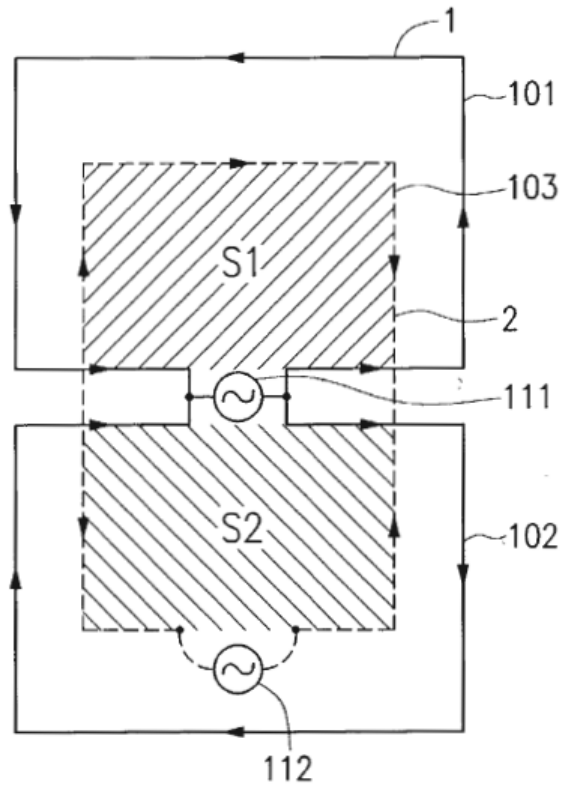


FIG. 3

Paper 16, 35 & EX1005

Slide 7 -- PATENT OWNER DEMONSTRATIVE EXHIBITS – NOT EVIDENCE

TANIGUCHI FIG. 23

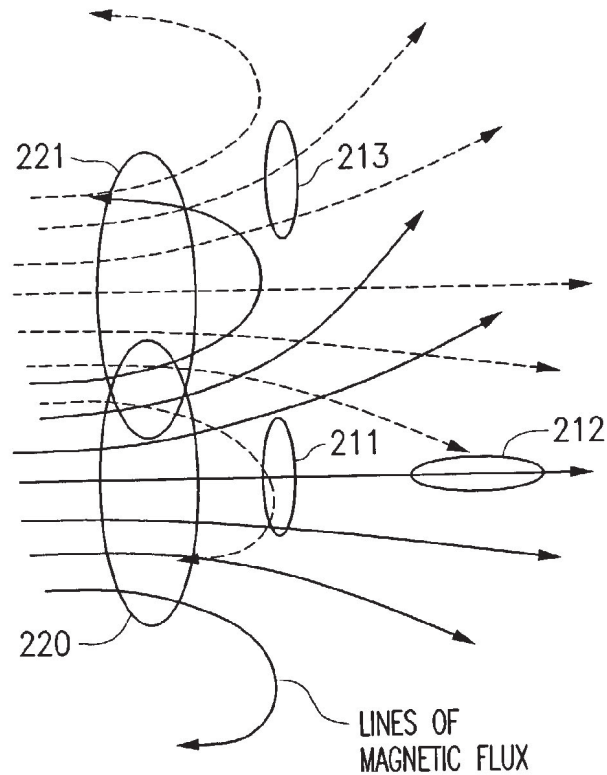
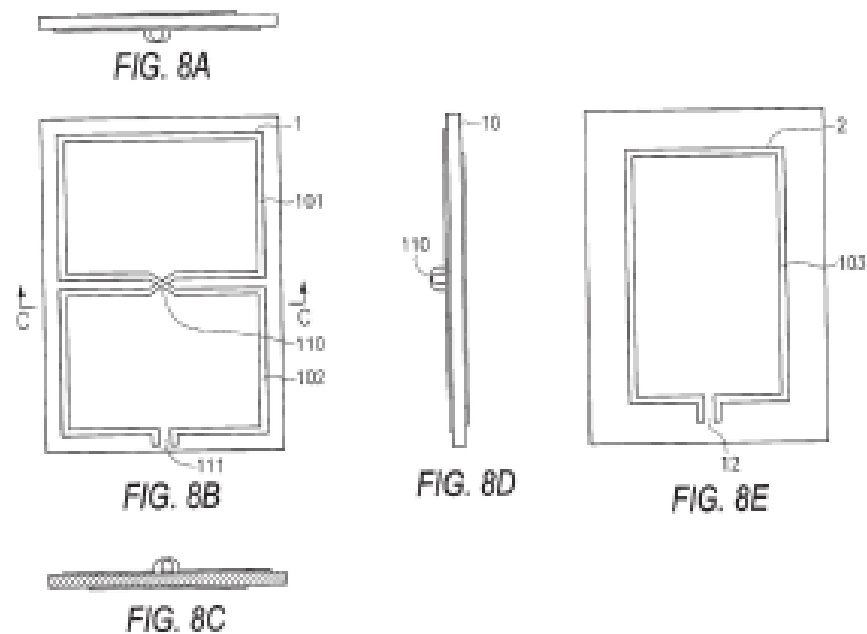


FIG. 23

Paper 2, 42 discussing INTEL-1003, 39-40 ¶¶ 67-68. Paper 16, 21 (concentric positioning) & EX1005

Slide 8 -- PATENT OWNER DEMONSTRATIVE EXHIBITS – NOT EVIDENCE

TANIGUCHI FIG. 8



Paper 16, 45 (referencing Figs. 8 of Taniguchi) & EX1005

Slide 9 -- PATENT OWNER DEMONSTRATIVE EXHIBITS – NOT EVIDENCE

'430 PATENT FIG. 7

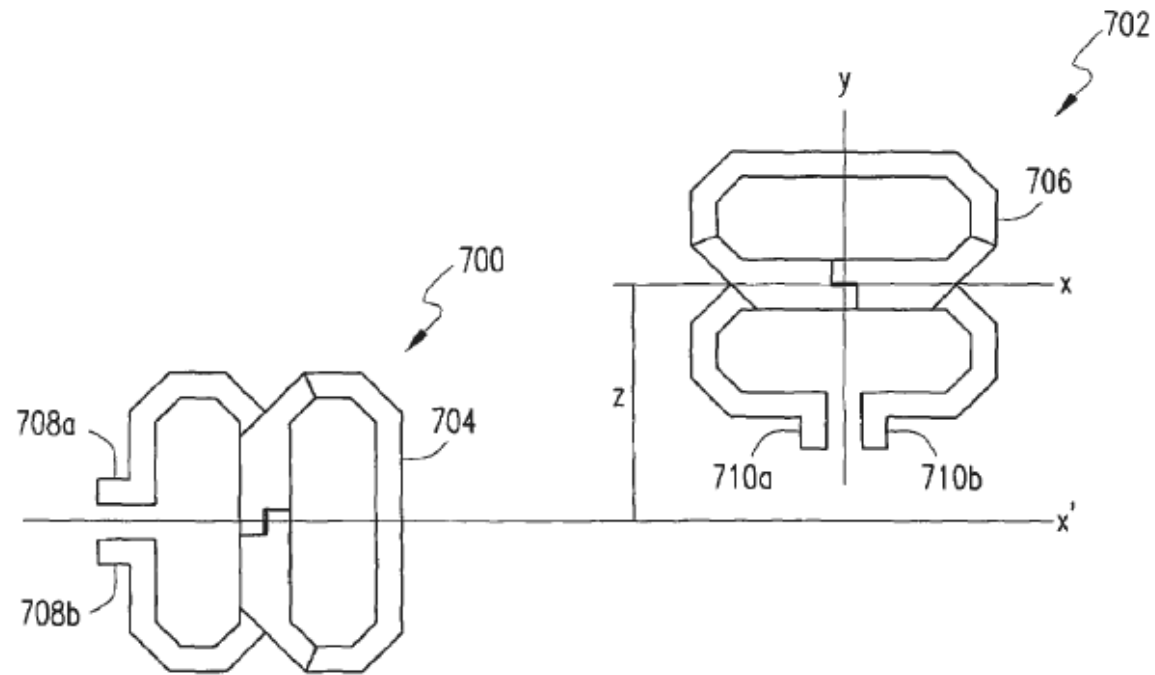


FIG. 7

Paper 16, 35 & EX1001

Slide 10 -- PATENT OWNER DEMONSTRATIVE EXHIBITS – NOT EVIDENCE

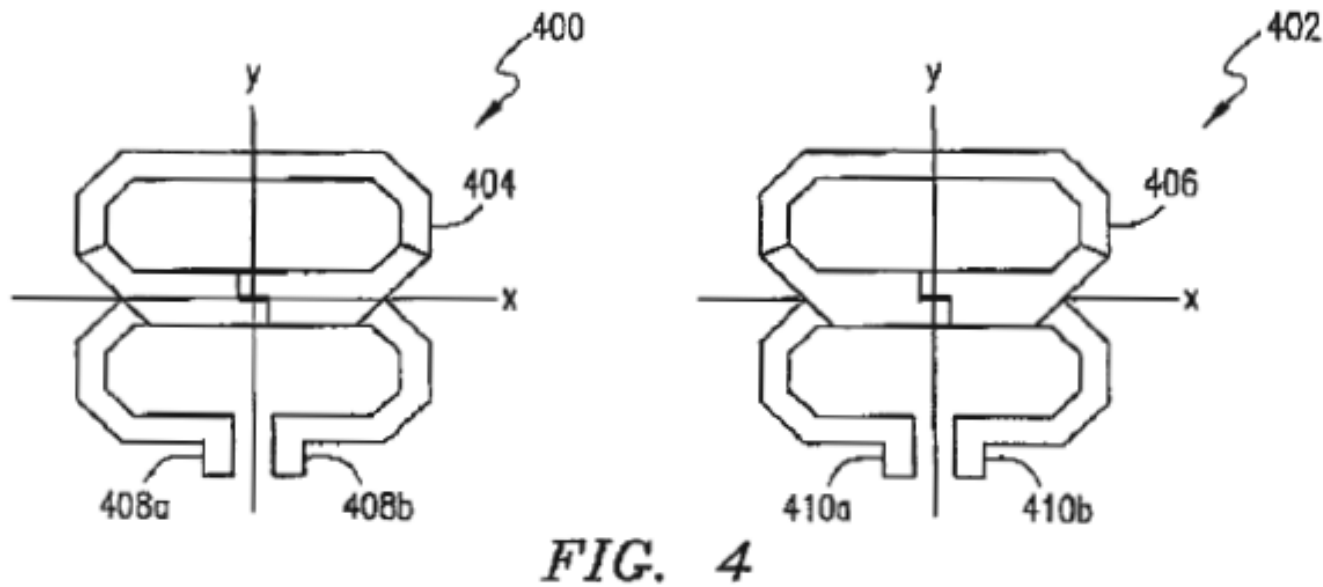
'430 PATENT**TABLE 2**

Offset [mm]	L1 [nH]	Q1	Gvdd [dB]	Att [dB]	Deg [dB]	k estim
0.0	1.216	15.19	−89.7	35.7	reference	0.000034
0.1	1.216	15.19	−85.3	31.3	4.4	0.000057
0.2	1.216	15.19	−82.5	28.5	7.2	0.000078
0.3	1.216	15.19	−81.0	27.0	8.7	0.000093
0.5	1.216	15.19	−81.8	27.8	7.9	0.000085
0.7	1.216	15.19	−85.8	31.8	3.9	0.000053
1.0	1.216	15.19	−103.4	49.4	−13.7	0.000007

Paper 16, 33 & EX1001

Slide 11 -- PATENT OWNER DEMONSTRATIVE EXHIBITS – NOT EVIDENCE

'430 PATENT FIG. 4



Paper 16, 32 & EX1001

Slide 12 -- PATENT OWNER DEMONSTRATIVE EXHIBITS – NOT EVIDENCE

'430 PATENT FIG. 6

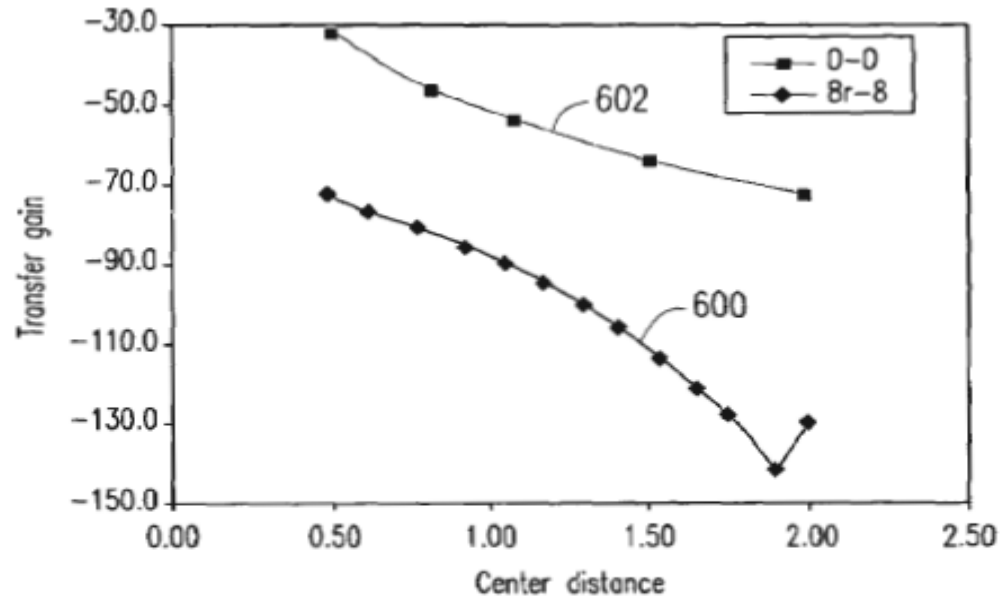


FIG. 6

Paper 25, 19 & EX1001

Slide 13 -- PATENT OWNER DEMONSTRATIVE EXHIBITS – NOT EVIDENCE

'430 PATENT FIG. 8

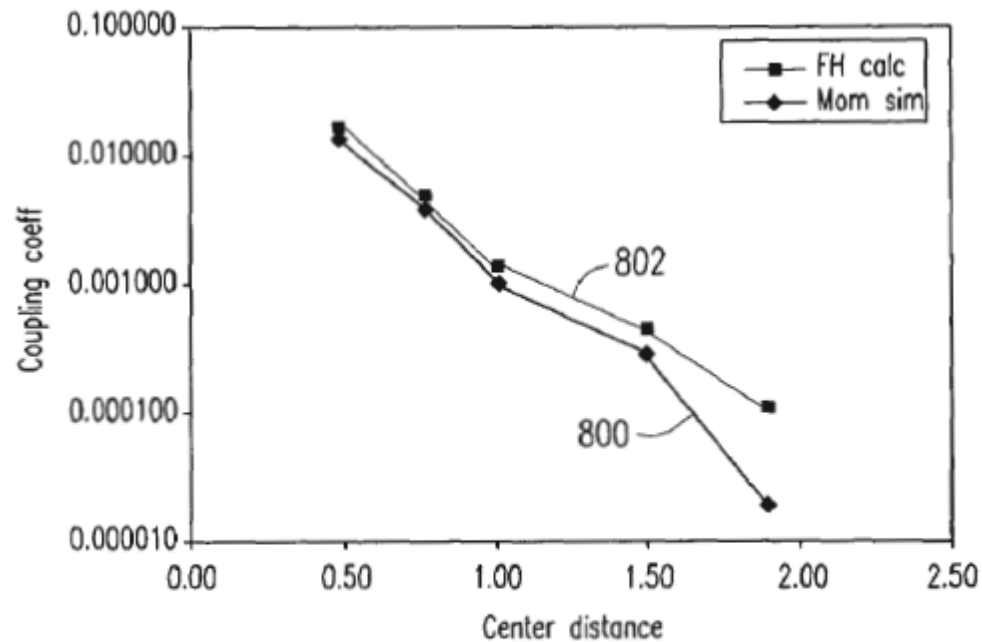


FIG. 8

Paper 26, 25 referring to EX1001 Fig. 8

Slide 14 -- PATENT OWNER DEMONSTRATIVE EXHIBITS – NOT EVIDENCE

‘430 PATENT FIG. 12

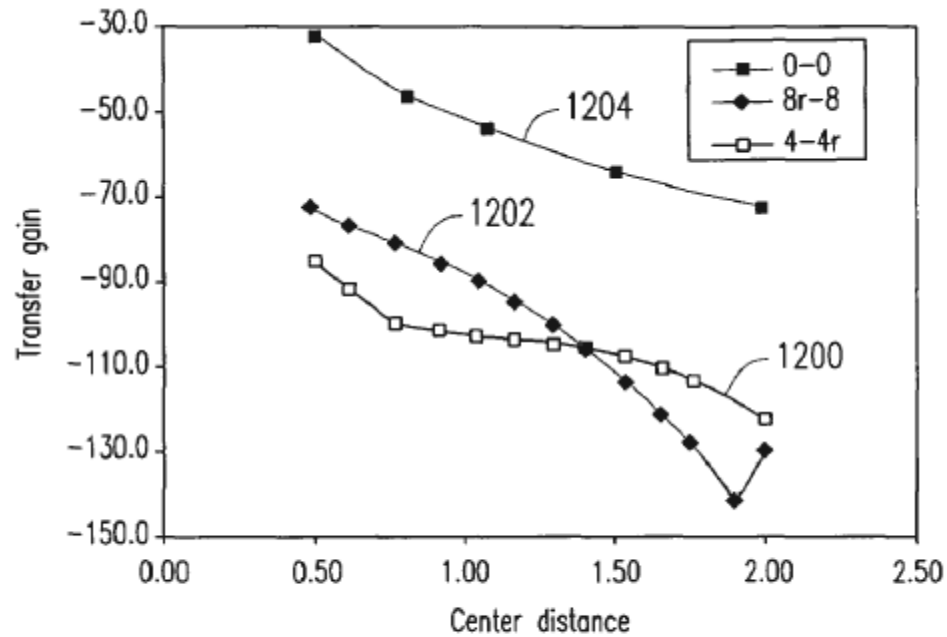
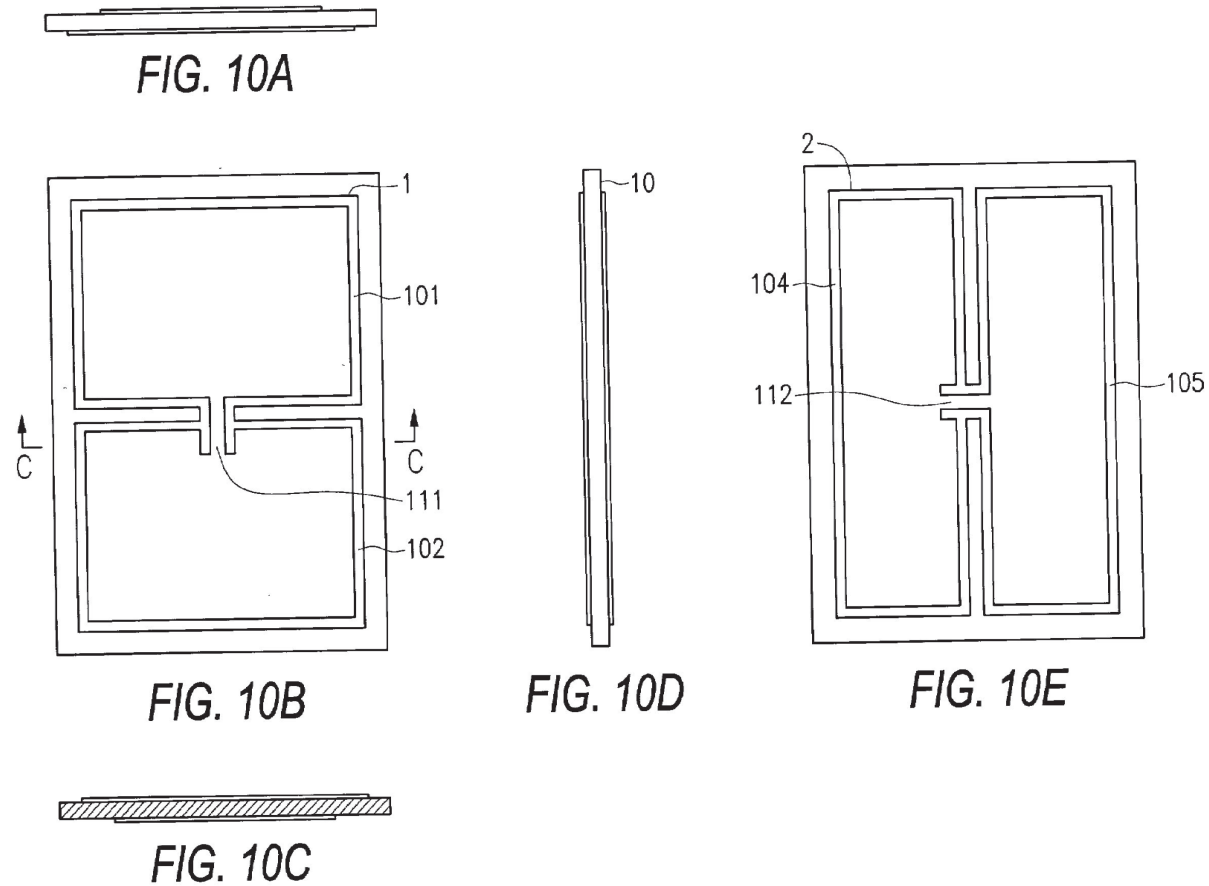


FIG. 12

Paper 16, 39 & 58 (refers to EX 1001 Fig. 12)

Slide 15 -- PATENT OWNER DEMONSTRATIVE EXHIBITS – NOT EVIDENCE

TANIGUCHI FIG. 10



Paper 16, 45 (referring to EX1005, Fig. 10)

Slide 16 -- PATENT OWNER DEMONSTRATIVE EXHIBITS – NOT EVIDENCE

EXCERPTS FROM EX1003 – TENTZERIS

- *Antenna 2 is placed within and concentric with antenna 1* such that the two antennas share common horizontal, vertical, and z- axes. EX1003, ¶ 107
- As I discuss below, *this concentric arrangement is necessary* to achieve zero mutual inductance between the antennas. EX1003, ¶ 163
- This is confirmed by Taniguchi's specification which describes *concentric placement* of antenna 2 in the Figure 8 embodiment having a rectangular second antenna so that overlapping regions S1 and S2 are equal ($S1=S2$) and in the Figures 9/10 embodiment having an eight-shaped antenna 2 so that overlapping regions S1 and S2 equal regions S3 and S4 ($S1+S2=S3+S4$). EX1003, ¶ 184
- As I noted previously, *this concentric placement is necessary* to create overlapping regions of the same size so that the residual mutual inductance between antennas 1 and 2 is zero. EX1003, ¶ 190

Paper 2, 14 & 41; Paper 16, 21 & EX 1003 (bold and italics added)

Slide 17 -- PATENT OWNER DEMONSTRATIVE EXHIBITS – NOT EVIDENCE

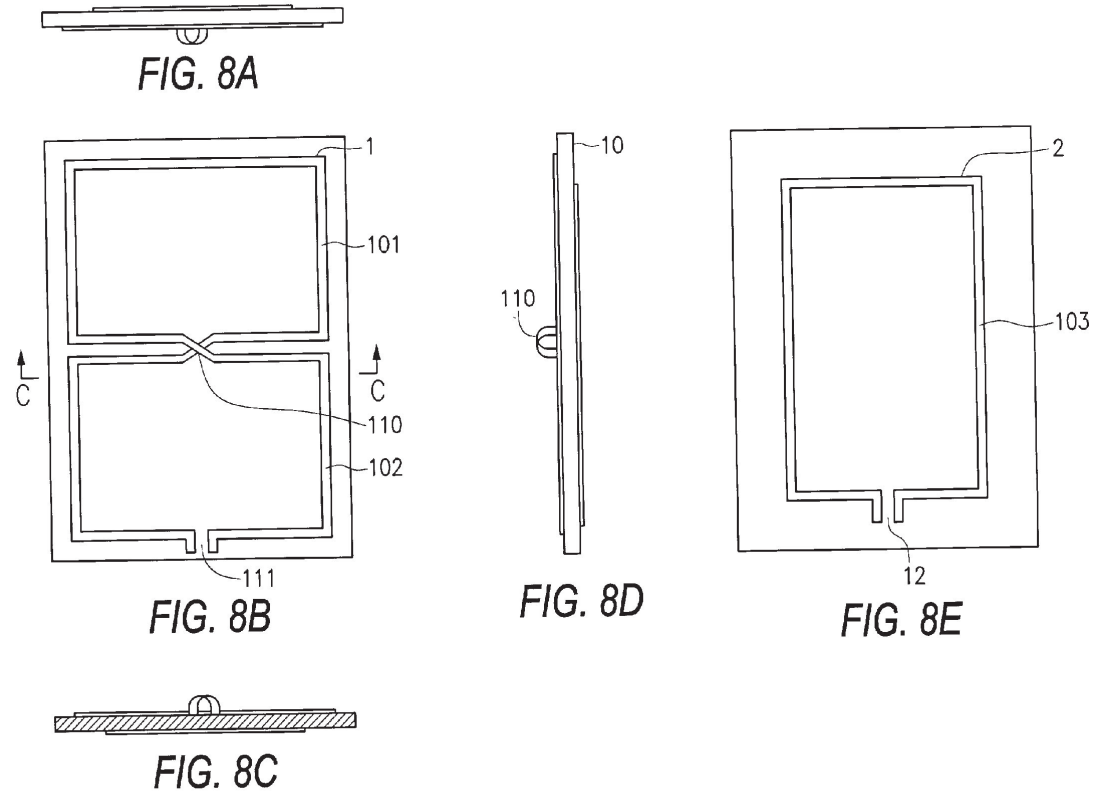
TENTZERIS DECLARATION EX1003

84. *The '430 patent does not provide guidance regarding the bounds of the term “reduced far field.”* As I discussed in the claim construction section, the ALJ in the prior investigation ITC-337-TA-1300 construed the nearly identical term, “first inductor having a reduced far field” of claim 1 as “(reduced/reduce) the electromagnetic field at a certain distance from the first inductor (where the second inductor is positioned).” (See INTEL-1020, 19.) The statement from the specification and the ALJ’s construction provide no description or insight into where the “far field” may be located, including because there are no bounds to the distance of the field from the inductor, or distance of the field between the inductor and position of any second inductor, for this limitation to be met. *Regardless of what the boundaries of the “far field” may be, Taniguchi discloses this term to the extent that it is described in the '430 patent specification.* (bold and italics added)

Paper 16, 41 (Discussing claim 20 that overlaps with claims 1 and 11, EX1003, ¶ 146)

Slide 18 -- PATENT OWNER DEMONSTRATIVE EXHIBITS – NOT EVIDENCE

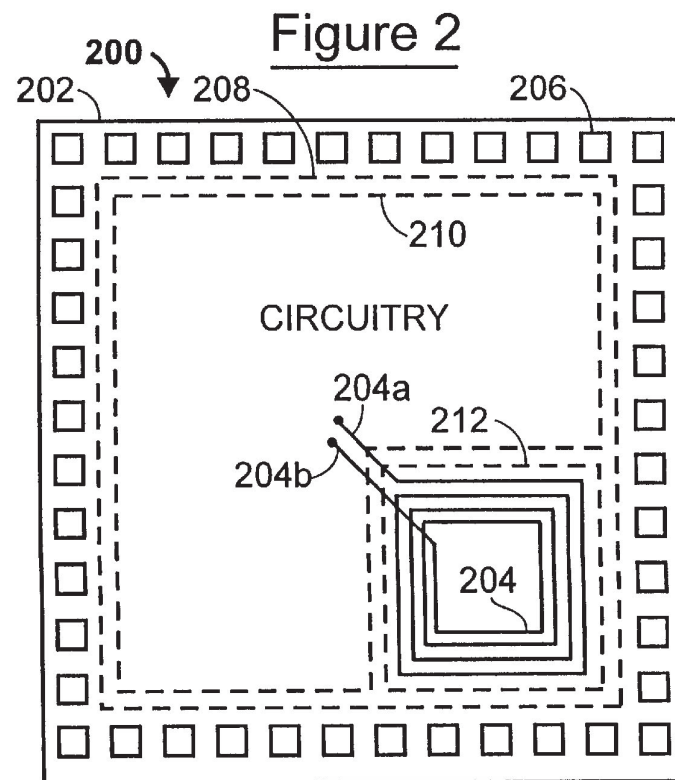
TANIGUCHI FIG. 8



Paper 16, 38 & 45 and EX1005

Slide 19 -- PATENT OWNER DEMONSTRATIVE EXHIBITS – NOT EVIDENCE

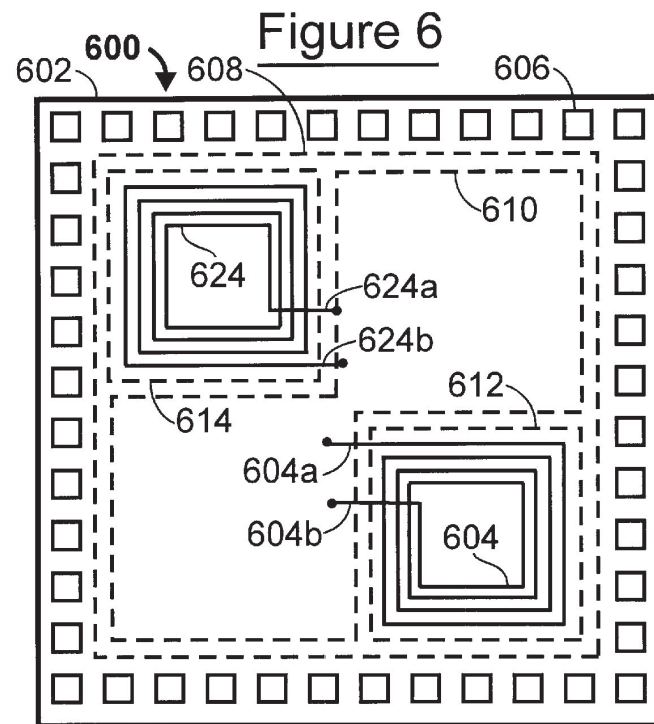
ROSTOKER FIG. 2



Paper 16, 49; EX1006

Slide 20 -- PATENT OWNER DEMONSTRATIVE EXHIBITS – NOT EVIDENCE

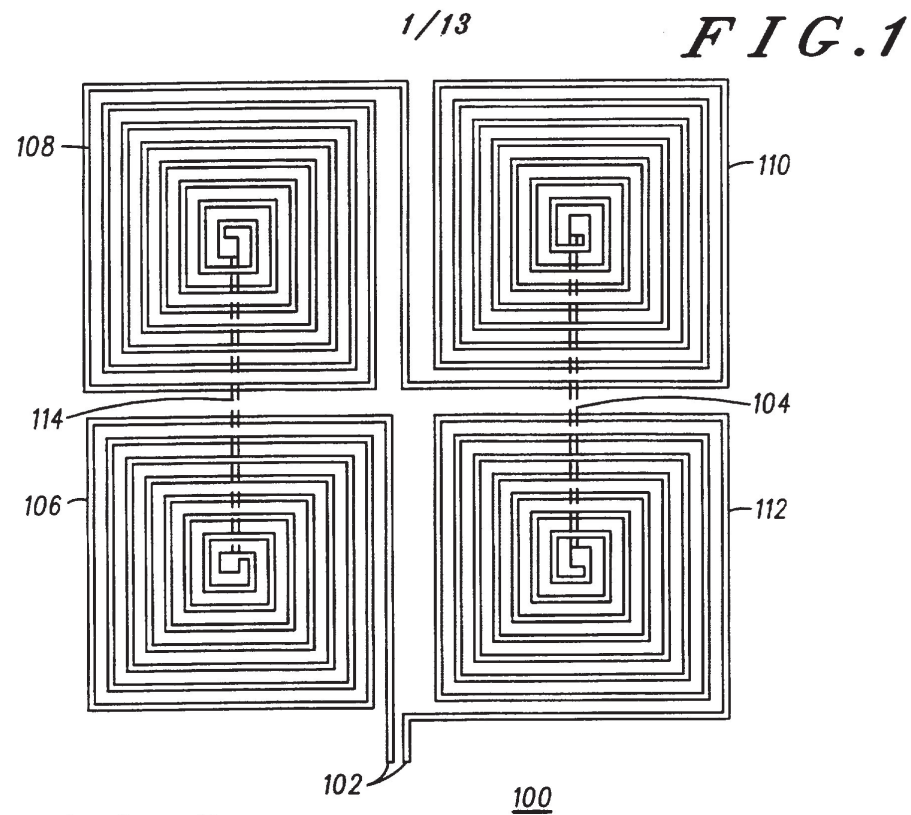
ROSTOKER FIG. 6



Paper 16, 50; EX1006

Slide 21 -- PATENT OWNER DEMONSTRATIVE EXHIBITS – NOT EVIDENCE

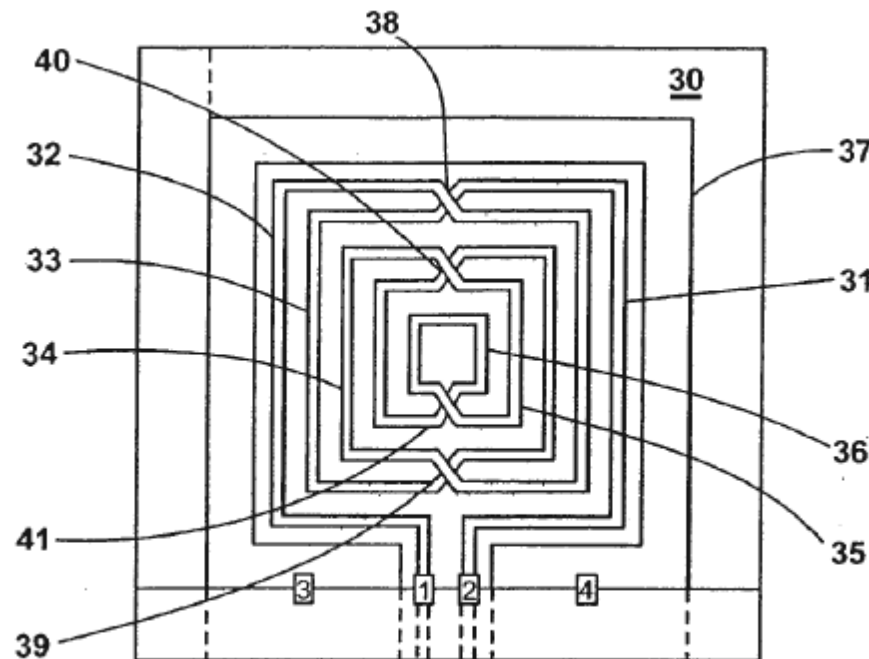
MIDYA FIG. 1



Paper 16, 56; EX1007

Slide 22 -- PATENT OWNER DEMONSTRATIVE EXHIBITS – NOT EVIDENCE

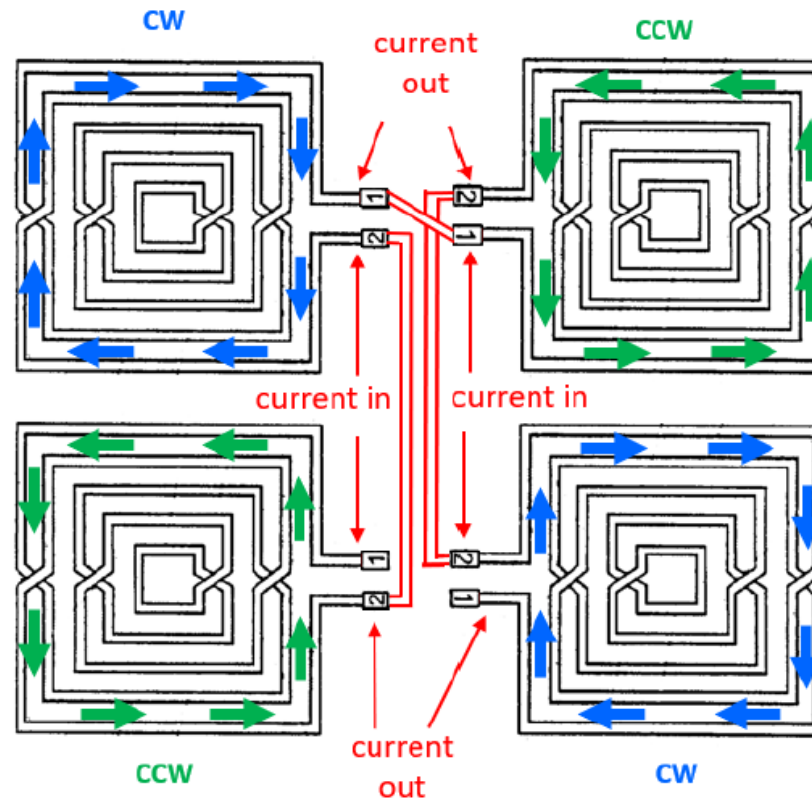
RAGHAVAN FIG. 3



Paper 16, 63-64 (refers to Fig. 3) EX1008

Slide 23 -- PATENT OWNER DEMONSTRATIVE EXHIBITS – NOT EVIDENCE

DR. TENTZERIS COMBINATION

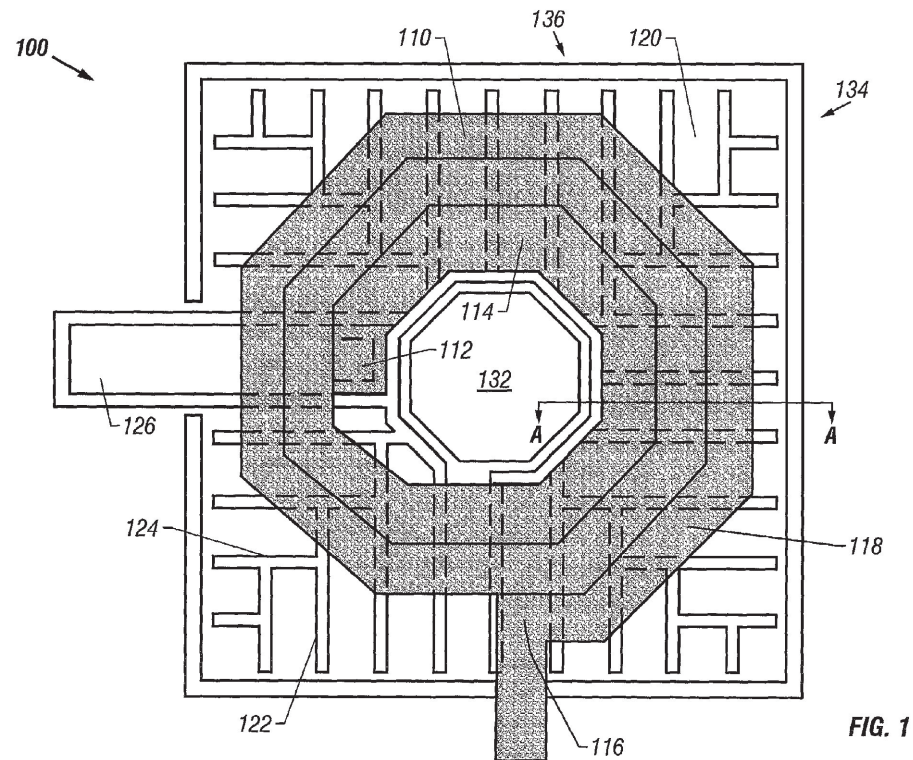


Combination of Midya and Raghavan

Paper 25, 23; EX1043, ¶ 65 and EX1003, ¶ 241, p. 189

Slide 24 -- PATENT OWNER DEMONSTRATIVE EXHIBITS – NOT EVIDENCE

GARDNER FIG. 1



Paper 16, 66; EX1009, Fig. 1.

Slide 25 -- PATENT OWNER DEMONSTRATIVE EXHIBITS – NOT EVIDENCE