

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property
Organization
International Bureau

(43) International Publication Date
29 October 2020 (29.10.2020)



(10) International Publication Number
WO 2020/219249 A1

(51) International Patent Classification:

H01J 37/32 (2006.01) H01Q 1/26 (2006.01)
H01Q 1/02 (2006.01) H05H 1/46 (2006.01)

(21) International Application Number:

PCT/US2020/026223

(22) International Filing Date:

01 April 2020 (01.04.2020)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

62/837,922 24 April 2019 (24.04.2019) US
16/828,602 24 March 2020 (24.03.2020) US

(71) Applicant: **APPLIED MATERIALS, INC.** [US/US];
3050 Bowers Avenue, Santa Clara, CA 95054 (US).

(72) Inventors: **CHUA, Thai, Cheng**; 19351 Calle De
Barcelona, Cupertino, CA 95014 (US). **NGUYEN, Hanh**;
3231 Lamond Court, San Jose, CA 95148 (US). **KRAUS,**
Philip, Allan; 1006 Broadway Avenue, San Jose, CA 95125
(US).

(74) Agent: **BERNADICOU, Michael, A.** et al.; Schwabe,
Williamson & Wyatt, P.C., 1211 SW 5th Avenue, Suite
1900, Portland, OR 97204 (US).

(81) Designated States (*unless otherwise indicated, for every
kind of national protection available*): AE, AG, AL, AM,
AO, AT, AU, AZ, BA, BB, BG, BH, BN, BR, BW, BY, BZ,
CA, CH, CL, CN, CO, CR, CU, CZ, DE, DJ, DK, DM, DO,
DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN,
HR, HU, ID, IL, IN, IR, IS, JO, JP, KE, KG, KH, KN, KP,
KR, KW, KZ, LA, LC, LK, LR, LS, LU, LY, MA, MD, ME,
MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ,
OM, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SA,
SC, SD, SE, SG, SK, SL, ST, SV, SY, TH, TJ, TM, TN, TR,
TT, TZ, UA, UG, US, UZ, VC, VN, WS, ZA, ZM, ZW.

(84) Designated States (*unless otherwise indicated, for every
kind of regional protection available*): ARIPO (BW, GH,
GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, ST, SZ, TZ,
UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, RU, TJ,
TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK,
EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV,
MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM,
TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW,
KM, ML, MR, NE, SN, TD, TG).

(54) Title: THERMAL BREAK FOR HIGH-FREQUENCY ANTENNAE

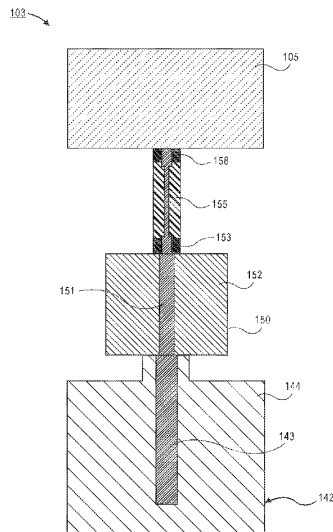


FIG. 1

(57) Abstract: Embodiments disclosed herein include a high-frequency emission module. In an embodiment, the high-frequency emission module comprises a solid state high-frequency power source, an applicator for propagating high-frequency electromagnetic radiation from the power source, and a thermal break coupled between the power source and the applicator. In an embodiment, the thermal break comprises a substrate, a trace on the substrate, and a ground plane.

WO 2020/219249 A1

[Continued on next page]

Published:

— *with international search report (Art. 21(3))*