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DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN,
HR, HU, ID, IL, IN, IR, IS, 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,

(54) Title: MITIGATING AN INDUCED ELECTRICAL SIGNAL FROM AN APPLIANCE IN A POWERED-OFF STATE

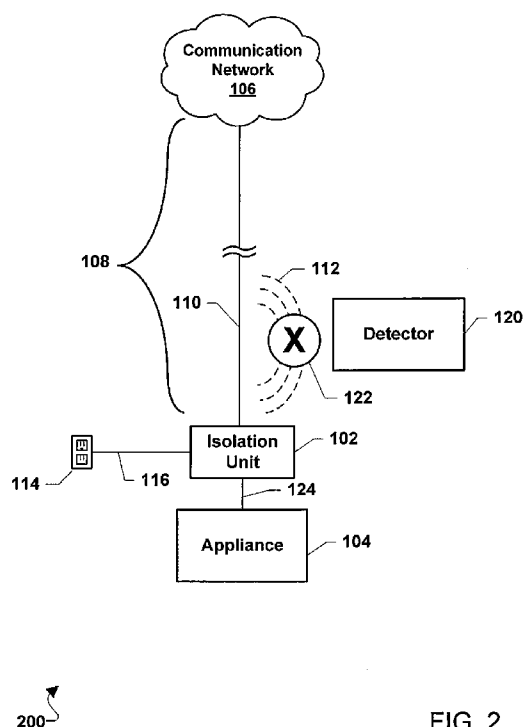


FIG. 2

(57) Abstract: An isolation unit may include input pins to receive an electrical signal induced by ambient sound waves incident on an appliance in a powered-off state, one or more first transformers, connected to the input pins, to electrically isolate the induced electrical, one or more second transformers, connected to the first transformers, to provide a common mode choke function on the induced electrical signal, one or more inductors, connected to the one or more second transformers, one or more resistors, connected to the one or more inductors, wherein the one or more inductors and the one or more resistors are configured to limit an amplitude of a current of the induced electrical signal, and output pins, connected to the one or more inductors, to receive a modified electrical signal from the one or more inductors to propagate the modified electrical signal to a downstream cable.



SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN, TR,
TT, TZ, UA, UG, US, UZ, VC, VN, 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).

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INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2017/031082**A. CLASSIFICATION OF SUBJECT MATTER****H04B 3/20(2006.01)i, H04B 3/30(2006.01)i**

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

H04B 3/20; H04M 9/00; G10K 11/175; G10L 19/00; H04B 1/10; H01P 5/04; H04B 3/30

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Korean utility models and applications for utility models

Japanese utility models and applications for utility models

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

eKOMPASS(KIPO internal) & keywords: induced electrical signal, ambient sound wave, appliance, powered-off state, transformer, isolate, common mode choke function, inductor, resistor, limit, amplitude, current, modified electrical signal, filtration, cancel, transform, intelligible audio signal, triboelectrically, piezoelectrically

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 2009-0067614 A1 (ROBERT D. WASHBURN et al.) 12 March 2009 See paragraphs [0046]-[0048]; and figures 2A, 3A.	1-40
A	US 2015-0003620 A1 (KOB CO INCORPORATED) 1 January 2015 See paragraphs [0045]-[0052]; claim 9; and figures 5, 6.	1-40
A	EP 1764780 A1 (DEUTSCHE THOMSON-BRANDT GMBH) 21 March 2007 See paragraphs [0014]-[0019]; claim 1; and figures 1, 2.	1-40
A	US 2009-0195303 A1 (WILLIAM J. BOWHERS) 6 August 2009 See paragraphs [0028]-[0032]; claim 1; and figure 3.	1-40
A	US 2009-0108964 A1 (THOMAS NGUYEN et al.) 30 April 2009 See paragraphs [0012], [0015]; and figure 3.	1-40



Further documents are listed in the continuation of Box C.



See patent family annex.

* Special categories of cited documents:

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"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

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"&" document member of the same patent family

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INTERNATIONAL SEARCH REPORT

Information on patent family members

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Patent document cited in search report	Publication date	Patent family member(s)	Publication date
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US 2009-0108964 A1	30/04/2009	US 7696836 B2	13/04/2010