

SEARCH HISTORY

Application Number	PCT/US 19/63745
Search Conducted By	LAP
Search Approved By	ADS

CPC/IPC Classifications Searched	IPC(8) – G07F 19/00 (2020.01) CPC-- G06Q 20/10; H02J 50/10; G06Q 20/16
Date Conducted	15 January 2020 (15.01.2020)

Documentation Searched	IPC(8)- G07F 19/00 (2020.01) CPC- G06Q 20/10; H02J 50/10; G06Q 20/16; G06Q 20/28; G06Q 30/04; G06Q 30/06 USPC– 705/34; 455/573; 705/412; 320/108; 705/39; 320/132; 455/41.1
Search Terms Used	Wireless or RF, power or energy, transmitter, receiver, antennas within cavity, metric, feedback, power transfer efficiency, parameter value set
Date Conducted	15 January 2020 (15.01.2020)

Electronic Database Searched	PatBase
Files Searched	Full-text: AU BE BR CA CH CN DE DK EP ES FI FR GB IN JP KR SE TH TW US WO Bibliographic: (Europe) AT BA BE BG CH CS CY CZ DD DK EE ES FI GE GR HR HU IE IS IT LT LU LV MC MD MT NL NO PL PT RO RS SE SI SK SM TR UA YU (Asia) EA GC HK ID IL IN KZ MN MY PH RU SG SU TH TJ TW UZ VN (North America) CA CR CU DO GT HN MX NI PA SV TT (South America) AR BR CL CO EC PE UY (Australasia) AU NZ (Africa) AP DZ EG KE MA MW OA ZA ZM ZW
Date Conducted	15 January 2020 (15.01.2020)

Search Logic:

- 1) (IC=(G07F19/00)) (18753)
- 2) (CPC=(G06Q20/10 OR H02J50/10 OR G06Q20/16 OR G06Q20/28 OR G06Q30/04 OR G06Q30/06)) (44616)
- 3) (UC=(705/34 OR 455/573 OR 705/412 OR 320/108 OR 705/39 OR 320/132 OR

- 455/41.1)) (18404)
- 4) 1 OR 2 OR 3 (71820)
 - 5) 4 AND (WPT OR (wireless near power)) W8 (transfer* OR charg* OR transmi*) (4576)
 - 6) 5 AND (transmitter* OR transceiver*) W7 (antenna* OR element*) (888)
 - 7) 6 AND (((receiv* near device*) OR receiver*) W7 power) (756)
 - 8) 7 AND (cavity OR enclosure*) W7 (receiver* OR antenna* OR element*) (56)
 - 9) 7 AND (adjust* OR chang* OR alter* OR modif*) W7 (parameter* OR phase* OR (power near level*) OR (operat* near state*)) (363)
 - 10) 9 AND (efficien* OR feedback*) W7 (transfer* OR transmission*) (256)
 - 11) 10 AND (measur* OR detect*) W7 (parameter* OR efficien*) (99)
 - 12) 11 AND (transmitter* OR transceiver*) W7 (adjust* OR modif* OR chang* OR alter*) (86)
 - 13) 12 AND (cavity OR enclosure*) W7 (receiver* OR transmitter* OR transceiver*) (13)
 - 14) 10 AND (feedback* W7 (metric* OR measurement* OR (coupl* near coefficient*))) (16)
 - 15) 9 AND (clos* W7 loop*) (56)
 - 16) 15 AND (loop* W7 control*) (34)
 - 17) 8 AND (feedback* W7 control*) (13)
 - 18) 5 AND (transmitter* OR transceiver*) W7 (power OR energy) (2308)
 - 19) 18 AND (power OR energy) W7 (receiver* OR (receiv* near electronic*)) (1886)
 - 20) 19 AND (cavit* OR enclosure*) W7 (receiver* OR electronic*) (94)
 - 21) 20 AND (transmitter* OR transceiver*) W7 (cavity OR enclosure*) (31)
 - 22) (PN=(US20120178364 OR US20150326061 OR US20160372948 OR US20170222469 OR US20120326660 OR US20160344195 OR US20170279305)) (7)
 - 23) CTB 22 OR CTF 22 (507)
 - 24) 23 AND (enclosure* OR housing* OR cavity) W7 (receiver* OR transmitter* OR transceiver*) (87)
 - 25) 24 AND (WPT OR (power near transfer*)) W7 (receiver* OR transmitter* OR transceiver*) (49)
 - 26) 22 AND (enclosure* OR cavity) W7 (receiver* OR antenna* OR element*) (5)
 - 27) 23 AND (feedback* W7 (control* OR adjust*)) (67)
 - 28) 27 AND (control* OR adjust*) W7 (parameter* OR phase* OR (power near transmi*)) (49)
 - 29) 28 AND (WPT OR (power near transfer*)) W7 (wireless OR RF) (31)
 - 30) 29 AND (receiver* W7 feedback*) (9)
 - 31) (WPT OR (wireless near power)) W8 (transmi* OR transfer* OR charg*) (39335)
 - 32) 31 AND (transmitter* OR transceiver*) W7 (antenna* OR element*) (5738)
 - 33) 32 AND (receiver* OR (receiv* near device*)) W7 (power OR energy) (3250)
 - 34) 33 AND (receiver* OR device*) W7 (measur* OR detect* OR determin*) (2569)
 - 35) 34 AND (detect* OR measur* OR determin*) W7 (receiv* OR (power near efficien*)) (2280)
 - 36) 35 AND (receiv* W6 power) (2215)
 - 37) 36 AND (receiver* W7 (provid* OR feedback* OR transmit*)) (2022)
 - 38) 37 AND (provid* OR feedback* OR transmit*) W7 (metric* OR (power near efficienc*)) (484)
 - 39) 38 AND (transmitter* OR transceiver*) W7 (adjust* OR modif* OR chang*) (320)
 - 40) 39 AND (modif* OR chang* OR adjust*) W7 (power* OR phase* OR (parameter near set)) (309)
 - 41) 40 AND (cavity OR enclosure*) W7 (receiver* OR (receiv* near device*)) (12)
 - 42) 40 AND (cavity OR enclosure*) W7 (antenna* OR element*) (17)
 - 43) 40 AND (first W7 transmi*) (251)
 - 44) 43 AND (transmi* W7 parameter*) (111)
 - 45) 44 AND (second W7 parameter*) (53)
 - 46) 36 AND (feedback* W7 control*) (390)

- 47) 46 AND (receiver* W7 feedback*) (101)
- 48) 47 AND (transmi* W7 parameter*) (60)
- 49) 48 AND (adjust* OR modif* OR chang*) W7 (parameter* OR power* OR phase*) (58)
- 50) 49 AND (power W6 receiv*) (58)
- 51) 50 AND (power W6 metric*) (8)
- 52) 48 AND (parameter* W7 set) (25)
- 53) (PA=(Supply W2 Inc*)) (2137)
- 54) (IN=(Davlanter W2 Christopher)) (2)
- 55) (IN=(Scott W2 Hunter)) (133)
- 56) 53 OR 55 (2270)
- 57) 56 AND (WPT OR (wireless near power)) W7 (deliver* OR transfer* OR transmi*) (4)

Electronic Database Searched	Google
Files Searched	Scholar (Articles excluding patents)
Date Conducted	15 January 2020 (15.01.2020)

Search Logic:

(wireless OR RF) (energy OR power) transmitter transmitting (elements OR antennas) (mounted OR affixed) within (cavity OR enclosure) enclosing power receivers- about 5410 results (0.12 secs)

(wireless OR RF) (energy OR power) (transmitter OR transceiver) operating at first transmission parameter value set (elements OR antennas) (mounted OR affixed) within (cavity OR enclosure) enclosing power receivers- about 2750 results (0.13 secs)

(wireless OR RF) (energy OR power) (transmitter OR transceiver) operating at first transmission parameter value set (elements OR antennas) (mounted OR affixed) within (cavity OR enclosure) enclosing power receivers efficiency information- about 2560 results (0.15 secs)

(wireless OR RF) (energy OR power) (transmitter OR transceiver) operating at first transmission parameter value set (elements OR antennas) (mounted OR affixed) within (cavity OR enclosure) enclosing power receivers efficiency information feedback to transmitter- about 1230 results (0.06 secs)

Electronic Database Searched	Google
Files Searched	Patents
Date Conducted	15 January 2020 (15.01.2020)

Search Logic:

(power OR energy) (transmitter OR transceiver) (transmit OR transfer) (wireless OR RF) (energy OR power) to power receivers enclosed within (cavity OR enclosure OR housing)

receive (request OR transfer efficiency OR metric) from receivers- about 43400 results (0.59 seconds)

(power OR energy) (transmitter OR transceiver) (transmit OR transfer) (wireless OR RF) (energy OR power) parameter value set to power receivers enclosed within (cavity OR enclosure) receive (request OR transfer efficiency OR metric) from receivers- about 19500 results (0.65 seconds)

(power OR energy) (transmitter OR transceiver) (transmit OR transfer) charging (wireless OR RF) (energy OR power) parameter value set to power receivers enclosed within (cavity OR enclosure) receive power (request OR transfer efficiency OR metric) from receivers- about 16300 results (0.64 seconds)

(wireless OR RF) (power OR energy) (transmitter OR transceiver) (antenna OR elements) (mounted OR affixed) to (cavity OR enclosure) (transmit OR transfer) (energy OR power) to power receivers enclosed within (cavity OR enclosure)- about 18400 results (0.51 seconds)

(wireless OR RF) (power OR energy) (transmitter OR transceiver) (antenna OR elements) (mounted OR affixed) to (cavity OR enclosure) (transmit OR transfer) (energy OR power) to power receivers enclosed within (cavity OR enclosure) determine efficiency transfer -about 14500 results (.54 seconds)

(wireless OR RF) (power OR energy) (transmitter OR transceiver) (transmit OR transfer) (energy OR power) to power receivers enclosed within (cavity OR enclosure OR housing) feedback amount of power received to transmitter- about 16400 results (.59 seconds)

Supplemental Search (SAO-ADS):

Electronic Database Searched	PatBase
Files Searched	Full-text: AU BE BR CA CH CN DE DK EP ES FI FR GB IN JP KR SE TH TW US WO Bibliographic: (Europe) AT BA BE BG CH CS CY CZ DD DK EE ES FI GE GR HR HU IE IS IT LT LU LV MC MD MT NL NO PL PT RO RS SE SI SK SM TR UA YU (Asia) EA GC HK ID IL IN KZ MN MY PH RU SG SU TH TJ TW UZ VN (North America) CA CR CU DO GT HN MX NI PA SV TT (South America) AR BR CL CO EC PE UY (Australasia) AU NZ (Africa) AP DZ EG KE MA MW OA ZA ZM ZW
Date Conducted	31 Januaray 2020 (31.01.2020)
Search Logic:	
<p>1 PN=(US2015326061) 1 2 1 ANd (time OR interval OR period). 1 3 (wireless OR induct*) W4 (power OR electric*) 263991</p>	

4 3 AND (time OR period OR interval) 167307
5 4 AND (parameter OR setting OR configuration) 105500
6 5 AND transmi* 81673 .
7 6 AND (second W3 (parameter OR setting OR configuration)) 7088
8 7 AND ((amount OR quantity) W3 power) 1427
9 8 AND (efficiency W3 transm*) 160
10 9 AND (power W6 second*) 138
11 10 AND (excitation W2 pattern) 0
12 10 AND pattern 76