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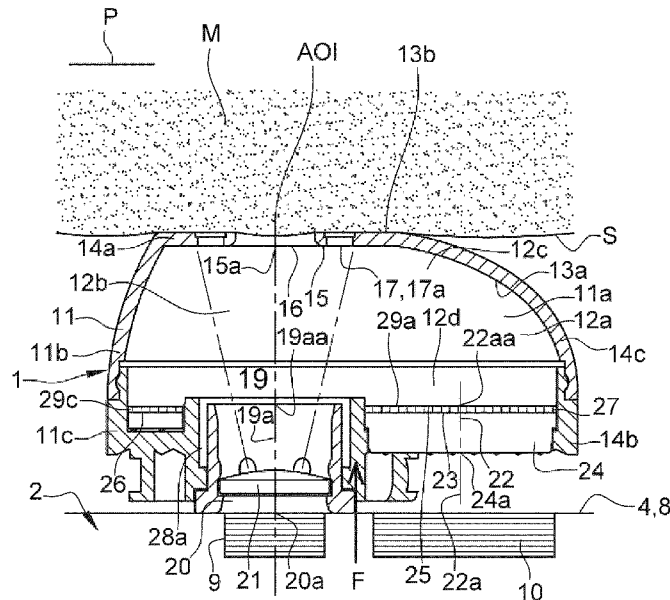
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(54) Title: MEASURE OF THE COLOR OF AN AREA OF INTEREST TARGET IN RELATIONSHIP WITH COLOR MEASUREMENT TARGETS

[Fig. 5A]



(57) Abstract: Mobile phone accessory (1), to be associated with a smartphone, comprising a support and handling casing with an internal space (11a), an inner face (13a), an orifice (16) to be associated with an AOI target, located within a light incident spot (15), and a rear wall portion (14b), a lighting means (22) with an axis (22a), to produce the light illuminating the spot (15), a camera field of view (19) with an axis (19a), to make a reflection photo of the spot (15) and its content, a scattering plate (27), having a scattering opening (30) with a center (19aa) and a center (22aa), colored targets being an appropriate number N of color measurement targets (17), sufficient to permit an accurate measure of the color of the AIO target, selected to have defined colors within a narrow gamut of colors representing the whole range of AOI target colors, and forming together a color measurement unity (17a), through the scattering opening (30) is seen the spot (15), the N color measurement targets (17) being located within the internal space (11a) and fixed on the



SA, SC, SD, SE, SG, SK, SL, ST, SV, SY, TH, TJ, TM, TN,
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- (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/EP2020/087646

A. CLASSIFICATION OF SUBJECT MATTER
INV. G01J3/02 G01J3/50 G01J3/52
ADD.
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)
G01J H04N G06T G03B
Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
EPO-Internal, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 2012/058641 A2 (UNIV CALIFORNIA [US]; FLETCHER DANIEL [US] ET AL.) 3 May 2012 (2012-05-03)	1-9, 21-26
Y	paragraphs [0059], [0060]; figures 1A, 4,	10-14
A	9	15-20
X	WO 2004/081653 A1 (SCALAR CORP [JP]; YAMAMOTO MASAO [JP]) 23 September 2004 (2004-09-23)	1-9, 21-26
Y	paragraphs [0147], [0153] - [0156];	10-14
A	figures 3, 11, 12	15-20
A	US 2014/285806 A1 (HAAS ALFRED M [US]) 25 September 2014 (2014-09-25) abstract; figures 1A, 1B	4-9
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Further documents are listed in the continuation of Box C. See patent family annex.

* Special categories of cited documents :

<p>"A" document defining the general state of the art which is not considered to be of particular relevance</p> <p>"E" earlier application or patent but published on or after the international filing date</p> <p>"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)</p> <p>"O" document referring to an oral disclosure, use, exhibition or other means</p> <p>"P" document published prior to the international filing date but later than the priority date claimed</p>	<p>"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention</p> <p>"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</p> <p>"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art</p> <p>"&" document member of the same patent family</p>
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Date of the actual completion of the international search 5 July 2021	Date of mailing of the international search report 14/07/2021
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Name and mailing address of the ISA/ European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Fax: (+31-70) 340-3016	Authorized officer Schmidt, Charlotte
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INTERNATIONAL SEARCH REPORT

International application No
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C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	DE 10 2004 033585 A1 (AXANA MUELLER SUSI [DE]; MUELLER CHRISTIAN JOERG [DE]) 2 February 2006 (2006-02-02) abstract; figure 1 -----	4-9
A	US 9 906 697 B2 (SHIN YO SHIK [KR]) 27 February 2018 (2018-02-27) cited in the application abstract; figures 1,2 -----	15-20
A	WO 2007/111353 A1 (OJI PAPER CO [JP]; KOJIMA JUNYA [JP] ET AL.) 4 October 2007 (2007-10-04) cited in the application abstract; figures 1,2 -----	15-20
Y	US 5 568 266 A (CIZA JEAN-CHARLES [FR] ET AL) 22 October 1996 (1996-10-22) abstract; figure 5 -----	10-14
Y	US 2009/196496 A1 (KALLA KAREN [US] ET AL) 6 August 2009 (2009-08-06) paragraph [0054] - paragraph [0058] -----	10-14
Y	US 2017/091941 A1 (ATKINSON DON [US]) 30 March 2017 (2017-03-30) paragraph [0042]; figure 5 -----	10-14

INTERNATIONAL SEARCH REPORT

International application No.
PCT/EP2020/087646

Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

2. Claims Nos.:
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:

3. Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1. As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2. As all searchable claims could be searched without effort justifying an additional fees, this Authority did not invite payment of additional fees.
3. As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:

4. No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.
- The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.
- No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-9, 15-26

A mobile phone accessory

1.1. claims: 1-9, 21-26

A mobile phone accessory with details of the position and dimensions of colour reference targets.

1.2. claims: 15-20

A mobile phone accessory with details of a scattering plate.

2. claims: 10-14

A mobile phone accessory with details of the manufacturing method used to manufacture colour references.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/EP2020/087646

Patent document cited in search report	Publication date	Patent family member(s)	Publication date		
WO 2012058641	A2	03-05-2012	CN 103181154 A	26-06-2013	
			EP 2633678 A2	04-09-2013	
			US 2013300919 A1	14-11-2013	
			US 2016248951 A1	25-08-2016	
			US 2017126943 A1	04-05-2017	
			US 2020336630 A1	22-10-2020	
			WO 2012058641 A2	03-05-2012	

WO 2004081653	A1	23-09-2004	JP 4175502 B2	05-11-2008	
			JP 2004279733 A	07-10-2004	
			WO 2004081653 A1	23-09-2004	

US 2014285806	A1	25-09-2014	NONE		

DE 102004033585	A1	02-02-2006	CA 2572657 A1	12-01-2006	
			DE 102004033585 A1	02-02-2006	
			EP 1766352 A1	28-03-2007	
			US 2008044082 A1	21-02-2008	
			WO 2006002978 A1	12-01-2006	

US 9906697	B2	27-02-2018	CN 205563038 U	07-09-2016	
			KR 101707861 B1	17-02-2017	
			US 2017085761 A1	23-03-2017	

WO 2007111353	A1	04-10-2007	JP 2007264343 A	11-10-2007	
			TW 200745619 A	16-12-2007	
			WO 2007111353 A1	04-10-2007	

US 5568266	A	22-10-1996	NONE		

US 2009196496	A1	06-08-2009	AU 2008278683 A1	29-01-2009	
			CA 2692647 A1	29-01-2009	
			CN 101754701 A	23-06-2010	
			EP 2170120 A2	07-04-2010	
			JP 5094972 B2	12-12-2012	
			JP 2010533537 A	28-10-2010	
			KR 20100029839 A	17-03-2010	
			US 2009196496 A1	06-08-2009	
			US 2011064307 A1	17-03-2011	
			WO 2009013687 A2	29-01-2009	

US 2017091941	A1	30-03-2017	EP 3198525 A1	02-08-2017	
			JP 2017535215 A	24-11-2017	
			US 2017091941 A1	30-03-2017	
			WO 2016049259 A1	31-03-2016	
