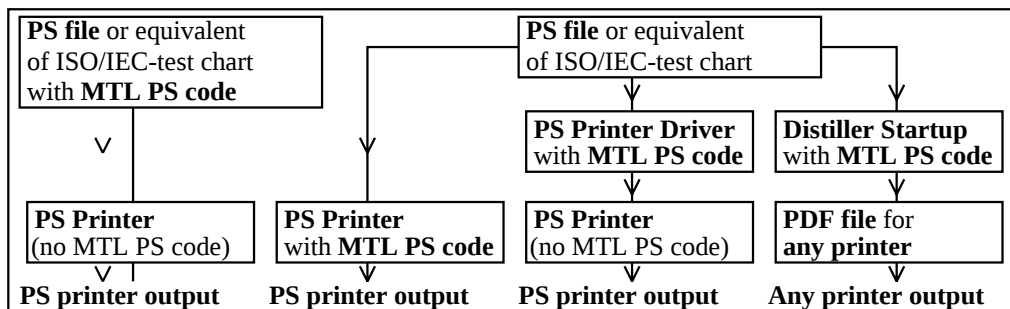
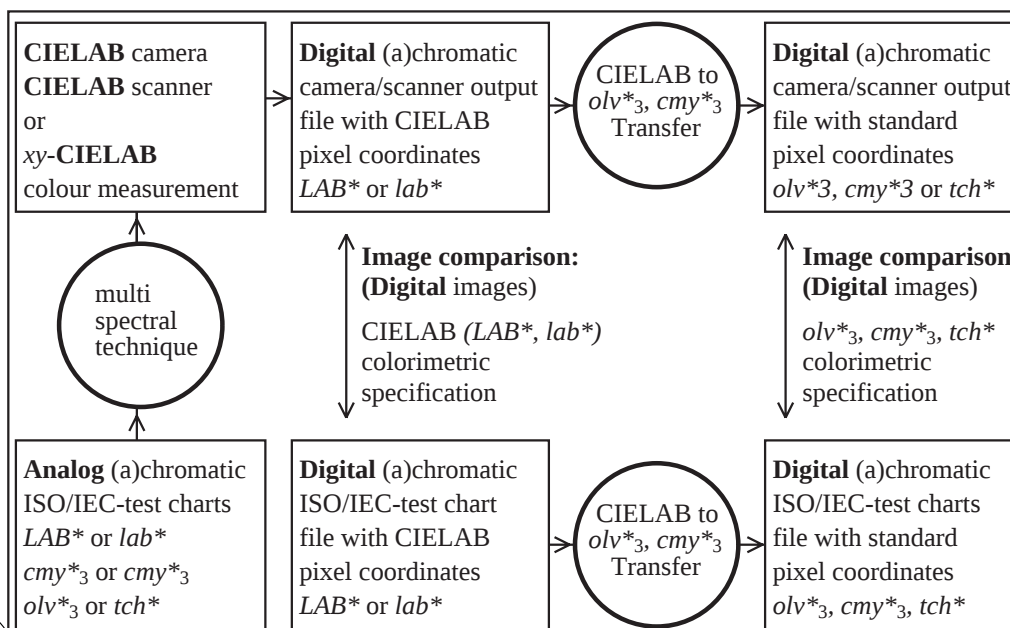


Elementary colour and CIE illuminant		CIELAB data, CIE tristimulus values and CIE chromaticity for the CIE standard illuminant D65 and D50 and the 2 degree observer									
CIE-test colour	Ill.	L*	a*	b*	C* _{ab}	h _{ab}	X	Y	Z	x	y
09, Red R	D65	40,04	58,98	28,32	65,43	25,7	20,64	11,27	4,34	0,5693	0,3110
10, Yellow J		81,30	-2,99	71,82	71,89	92,4	54,89	59,01	12,02	0,4359	0,4686
11, Green G		52,27	-42,40	13,64	44,54	162,2	12,15	20,38	15,34	0,2538	0,4258
12, Blue B		30,52	1,21	-46,35	46,37	271,5	6,24	6,45	27,59	0,1550	0,1601
09, Red R	D50	41,88	62,00	31,82	69,69	27,2	23,31	12,42	3,24	0,5982	0,3188
10, Yellow J		81,97	1,81	71,59	71,61	88,5	58,84	60,24	9,50	0,4576	0,4685
11, Green G		51,62	-41,12	11,52	42,70	164,4	12,10	19,81	11,95	0,2759	0,4515
12, Blue B		29,20	-5,28	-49,34	49,62	263,9	5,25	5,92	21,25	0,1621	0,1825

ZE160-1



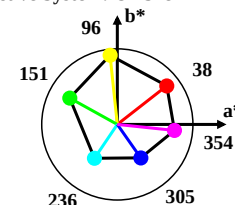
ZE160-3



ZE160-7

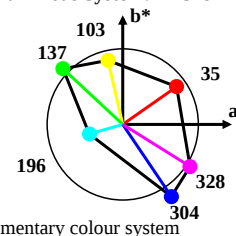
CIELAB chroma diagrams (a*, b*) of the systems: ORS18, TLS18, NRS18, SRS18

Offset Reflective System: ORS18



Two of many device dependent systems of SC28 standard documents

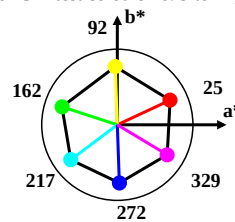
Television Luminous System: TLS18



Ongoing experts discussions about a definition of a device independent elementary colour system
There are advantages and disadvantages of for example:

Natural Reflective System: NRS18

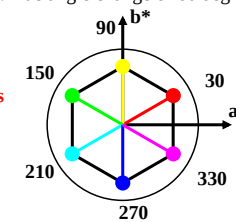
(Hue angles of CIE test colours no. 9 to 12)



Two device independent elementary colour systems under expert discussion

Standard Reflective System: SRS18

(Approximation: Hue angle change of 60 degrees)



ZE161-3

CIE standard illuminants and CIE other illuminants according to CIE 15:2004 "Colorimetry"

CIE standard illuminant D65

Basic CIE research and standard work

CIE colour spaces: CIELAB, CIELUV
Colour order systems: NCS, RAL, DIN 6164, Munsell, OSA
CIE Colorimetry according to CIE Publ. 15

Application field in Image Technology

Television, Monitors: ITU, IEC 61966-X
All (mobile) Displays, Data projectors: ISO 9241-300 to 307
Colour office devices: ISO/IEC 15775
ISO/IEC TR 24705

Need for many applications

Color Space LMSLAB
User friendly!
nce* -> nch* -> rgb*

CIE standard illuminant D65

CIE Colorimetry according to CIE Publ. 170-1

For the case of standardisation CIE 15 recommends to use in application one of the CIE standard illuminants whenever possible.
DIN V 18599-4:2007, "Illumination" recommends daylight (D65) use in offices

ZE161-7

BAM-test chart no. ZE16; Workflow and CIELAB camera
Elementary colours, device independent colour olv*, cmy*, tch*

input: rgb setrgbcolor
output: no change compared to input