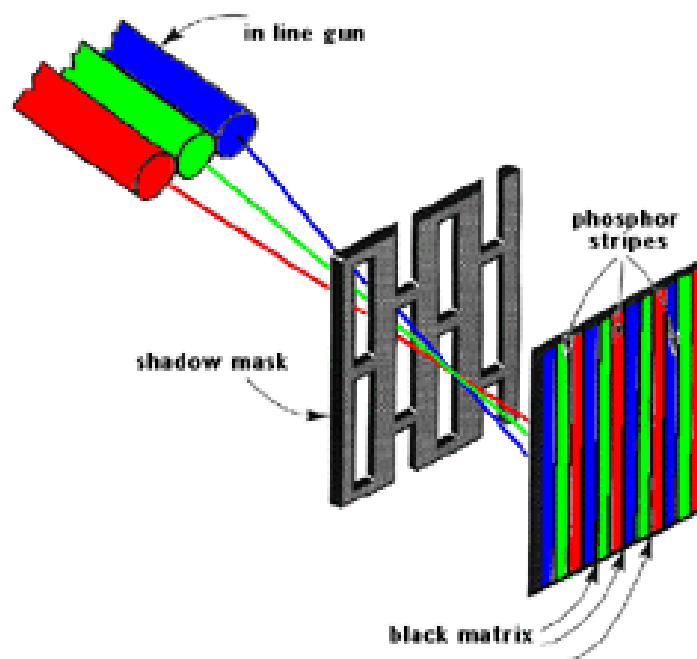
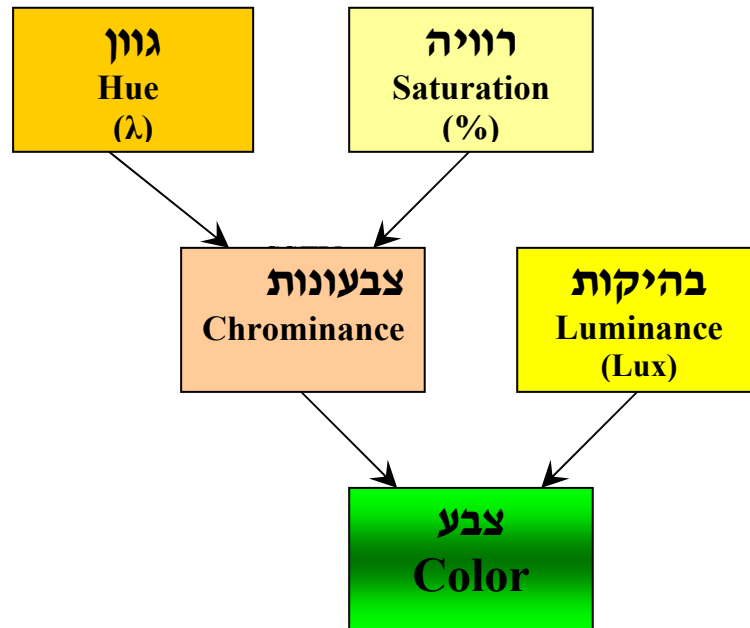
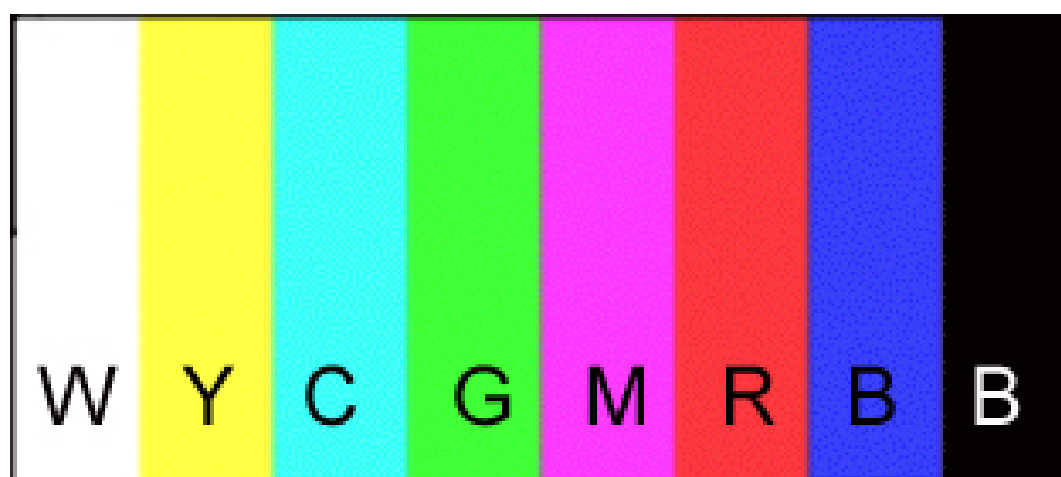
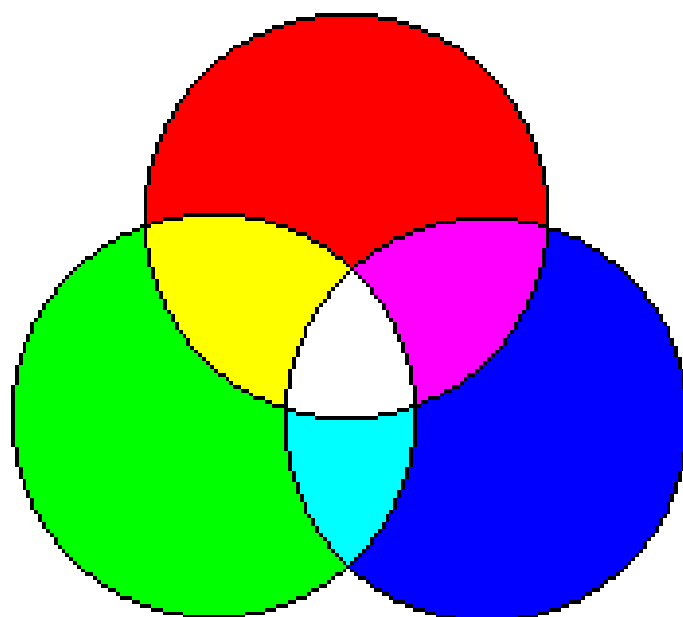


SSTV (Slow Scan Television)

ערך: אינגר משה 4Z1PF

הגדרת הצבע





Slow Scan Television

תחילת השידורים 1958 על ידי VE1BFL

תקן שחור/לבן

8 שניות	זמן יצירת תמונה
120	מספר שורות לתמונות
67 מילי-שניות	זמן סריקת שורה
30 מילי-שניות	זמן סנכרון אנכי
5 מילי-שניות	זמן סנכרון אופקי
1200 הרץ	תדר סנכרון H&V
1500 הרץ	תדר שחור
2300 הרץ	תדר לבן

SSTV בצבע

הניסויים הראשוניים היו כאשר שידרו את התמונה בתקן הנ"ל והכניסו מסננים (RGB) לפני המצלמה ולפני ה-CRT. את התמונה שהתקבלה צילמו במצלמת פולארויד 3 פעמים.

תדרי עבודה

7.033 מה"ץ LSB
14.230 מה"ץ USB
28.680 מה"ץ USB

תקני עבודה

יפן 1 Scottie
ארה"ב 1&2 Scottie
אירופה 1&2 Martin

Black/white Modes

Robot modes were developed by ROBOT RESEARCH, INC. San Diego CA9211

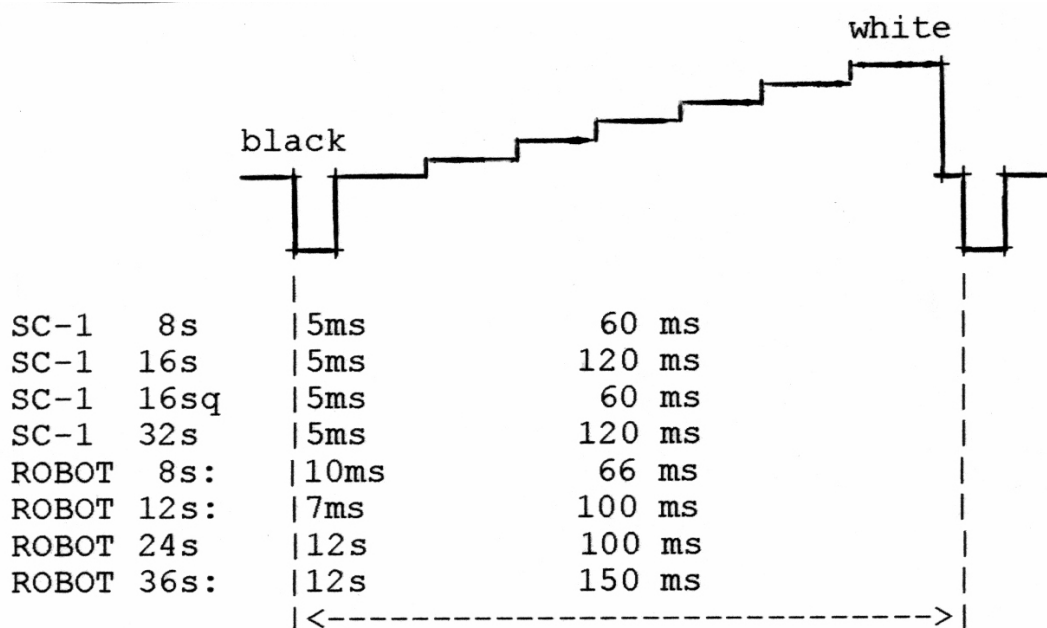
(e.g. Robot-1200c). Originally the Robot-Modes were not free-running modes. Modified Robot-1200c and compatible converters using Martin EPROMs and high-performance oscillators can receive and transmit these modes using the free-run facility.

Mode Nickname	Colour seq.	Resolution #1 Pixel x Line	Resolution #2 Pixel x Line	B x H
SC-1 8s	Bright.	128 x 128	160 x 128	1:1
SC-1 16s	Bright.	256 x 128	320 x 128	1:1
SC-1 16sq	Bright.	128 x 256	160 x 256 *	1:1
SC-1 32s	Bright.	256 x 256	320 x 256	1:1
Robot 8s	Bright.	160 x 120	160 x 120	4:3
Robot 12s	Bright.	320 x 120	320 x 240	4:3
Robot 24s	Bright.	320 x 240	320 x 240	4:3
Robot 36s	Bright.	320 x 240	320 x 240	4:3

#1 Resolution of transmitted image

#2 Displayed resolution

* SC-1 16s "quasi" can be received in SC-1 8s mode



Martin Modes

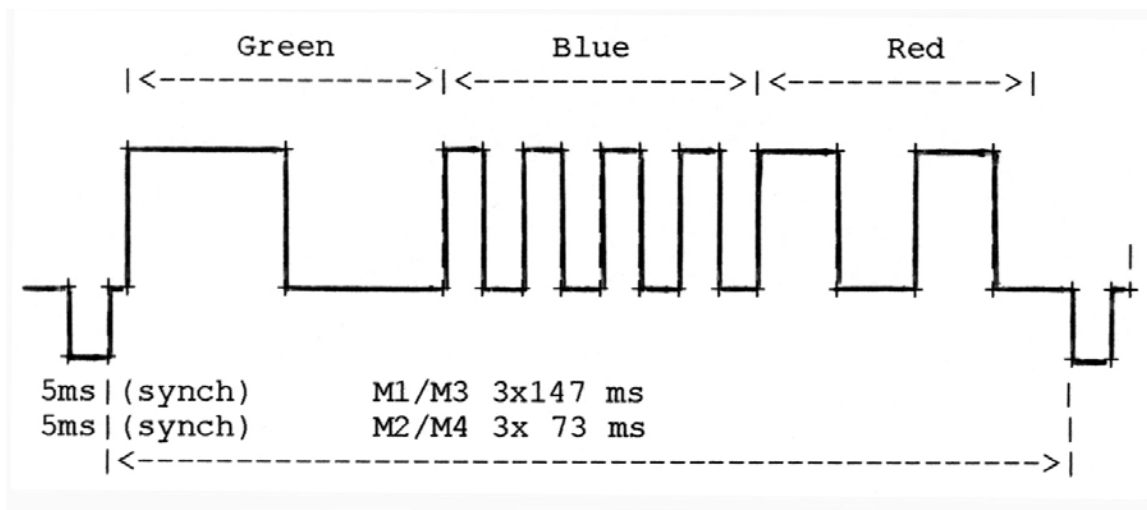
Martin-Modes were developed by Martin H Emmerson. G3OQD.
Martin-Modes are all free-running (also called "New Modes")

Mode Nickname	Colour seq.	Resolution #1 Pixel x Line	Resolution #2 Pixel x Line	Format B x H
Martin-M1:	G-B-R	320 x 256	320 x 256	4:3
Martin-M2:*	G-B-R	160 x 256	160 x 256	4:3
Martin-M3:	G-B-R	320 x 128	320 x 256	4:3
Martin-M4:	G-B-R	160 x 128	160 x 128	4:3

* M2 can be received on setting M4.

1# Resolution of transmitted image

2# Displayed resolution



Scottie Modes

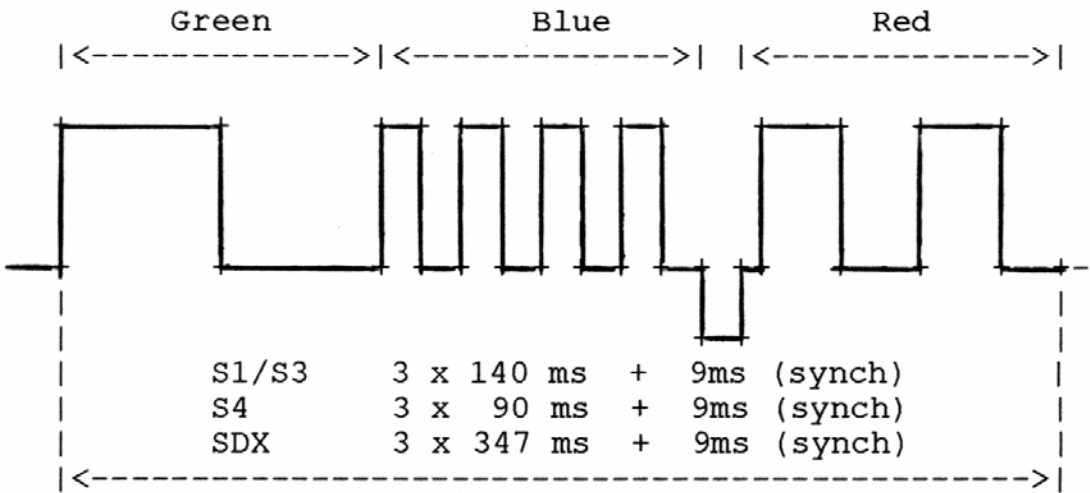
Scottie Modes were developed by E.T.J Murphy GM3SBC.
The (modified) Scottie Modes are Free-Running modes.

Mode Nickname	Colour seq.	Resolution #1 Pixel x Line	Resolution #2 Pixel x Line	Format B x H
Scottie-S1	G-B-R	320 x 256	320 x 256	4:3
Scottie-S2*	G-B-R	320 x 128	160 x 250	4:3
Scottie-S3	G-B-R	320 x 128	320 x 128	4:3
Scottie-S4	G-B-R	160 x 128	160 x 128	4:3
Scottie-DX	G-B-R	320 x 256	320 x 256	4:3

* S2 can be received on setting S4.

1# Resolution of transmitted image

2# Displayed resolution



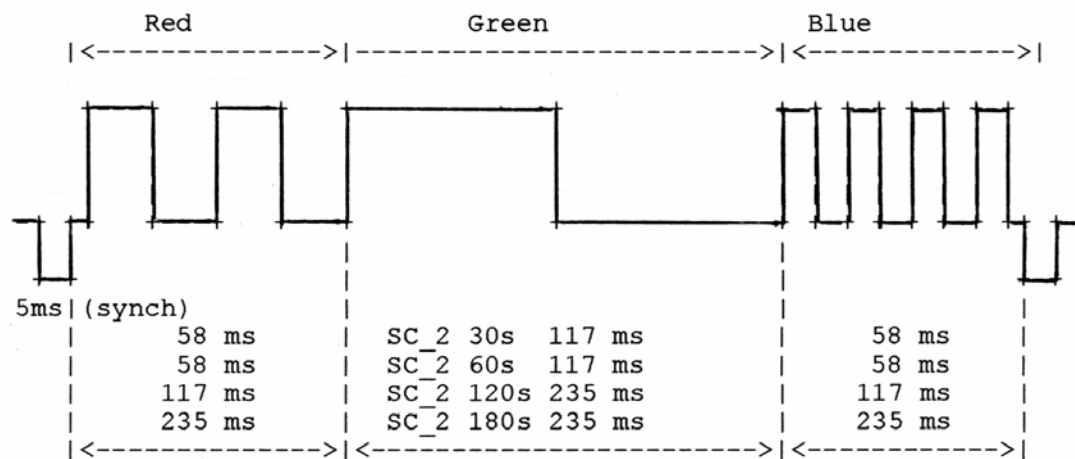
Wraase SC-2 Colour Modes

SC-1 and SC-2 modes were developed by Volker Wraase in Kiel.
The improved SC-2 modes are Free-Running modes.

Mode Nickname	Colour seq.	Resolution #1 Pixel x Line	Resolution #2 Pixel x Line	Format B x H
SC-2 30s	R-G-B	256 x 128	320 x 128	4:3
SC-2 60s	R-G-B	256 x 256	320 x 256	4:3
SC-2 120s	R-G-B	512 x 256	320 x 256	4:3
SC-2 180s	R-G-B	512 x 256	320 x 256	4:3

1# Resolution of transmitted image

2# Displayed resolution



ROBOT Color Modes

Robot modes were developed by ROBOT RESEARCH, INC. San Diego CA9211

(e.g. Robot-1200c). Originally Robot-Modes were not free-running modes, modified Robot-1200c and compatible converters using Martin EPROMs and high-performance oscillators can receive and transmit these modes using the free-run facility. GSH-PC can receive all Robot modes as normal or free-running.

Mode Nickname	Colour seq.	Resolution #1 Pixel x Line	Resolution #2 Pixel x Line	Format B x H
ROBOT 12s	Y-U-V	160 x 120 *A	160 x 120	4:3
ROBOT 24s	Y-U-V	320 x 120 *B	320 x 120	4:3
ROBOT 36s	Y-U-V	320 x 240 *A	320 x 240	4:3
ROBOT 72s	Y-U-V	320 x 240 *B	320 x 240	4:3

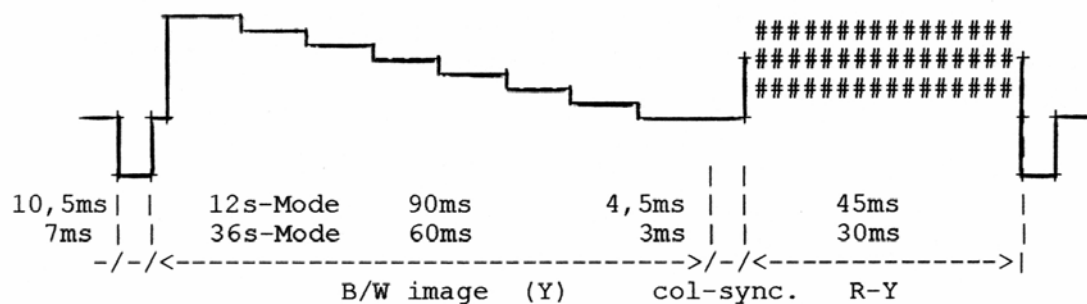
1# Resolution of transmitted image

2# Displayed resolution

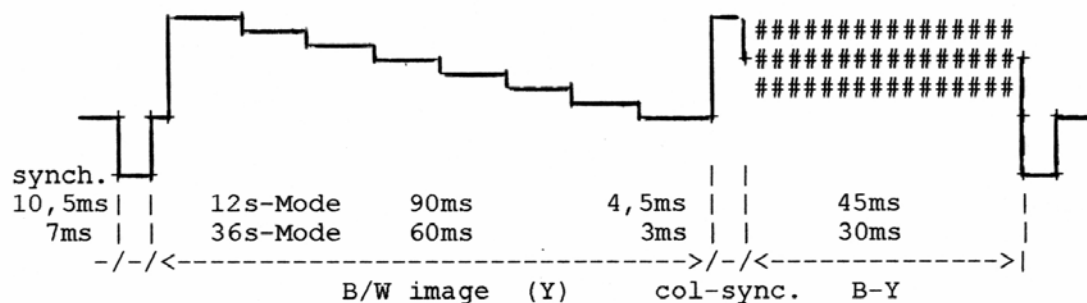
* A Type-A: Colour information for each 2nd. line.

* B Type-B: Colour information for each line.

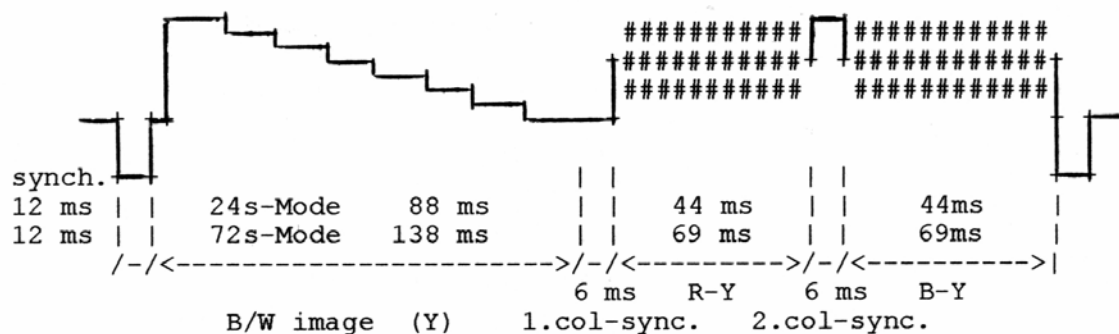
Typ-A: Colour information (R-Y) in each odd line.



Typ-A: Colour information (B-Y) in each even line.



Typ-B. Colour information (R-Y) and (B-Y) in each line.

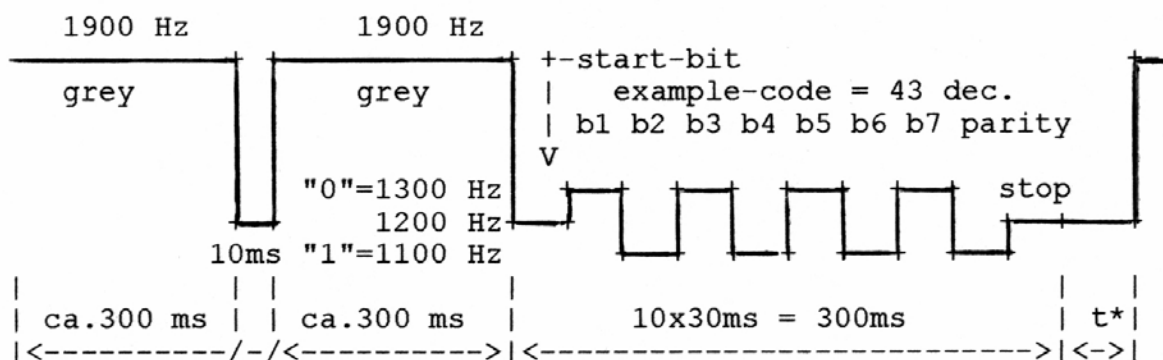


The Vertical Interval Signal (VIS)

The VIS-code, introduced by ROBOT, is used by lot of SSTV-stations to indicate the used mode/speed at the beginning of the transmission.

The VIS-code, decoded by the receiving station, allows automatic selection of the correct mode/speed. The VIS-code is part of the vertical sync pulse, and consists of 10 bits each 30 ms long. The first and last bit (start and stop bits) are represented by 1200 Hz tones . The VIS-code is coded in the remaining 8 bits, including one (even)parity bit.

There are 128 possible combinations.



*t is the horizontal sync pulse of the first line, the length is dependent on the current SSTV speed. This length is very important for the correct horizontal image position.

The meaning of the bits (with some exceptions)

[illegible]

The complete list of the available VIS-codes;

The LSB of the VIS-code (bit-1) is sent first, as usual by serial data communication. Logical 1 is represented by 1100 Hz and logical 0 by 1300 Hz. The start and stop bits are modulated at 1200 Hz.

Norm-Nickname	msb	bits	lsb	decimal					
	1	2	3	4	5	6	7	value	
ROB 12s col.	0	0	0	0	0	0	0	0	1: red image
ROB 8s b/w	0	0	0	0	0	x	x	1,2,3	---> 2: green image
ROB 24s col.	0	0	0	0	1	0	0	4	3: blue image
ROB 12s b/w	0	0	0	0	1	x	x	5,6,7	
ROB 36s col.	0	0	0	1	0	0	0	8	
ROB 24s b/w	0	0	0	1	0	x	x	9,10,11	
ROB 72s col.	0	0	0	1	1	0	0	12	
ROB 36s b/w	0	0	0	1	1	x	x	13,14,15	
24s col SC-1*	0	0	1	0	0	0	0	16	
8s b/w SC-1	0	0	1	0	0	x	x	17,18,19	
48s col SC-1*	0	0	1	0	1	0	0	20	
16s b/w SC-1	0	0	1	0	1	x	x	21,22,23	
48q col SC-1*	0	0	1	1	0	0	0	24	
16q b/w SC-1*	0	0	1	1	0	x	x	25,26,27	
96s col SC-1*	0	0	1	1	1	0	0	28	
32s b/w SC-1	0	0	1	1	1	x	x	29,30,31	
Martin-M4	0	1	0	0	0	0	0	32	
Martin-M3	0	1	0	0	1	0	0	36	
Martin-M2 *	0	1	0	1	0	0	0	40	
Martin-M1	0	1	0	1	1	0	0	44	
Scottie-4	0	1	1	0	0	0	0	48	
Scottie-3	0	1	1	0	1	0	0	52	
Scottie-2 *	0	1	1	1	0	0	0	56	
Scottie-1	0	1	1	1	1	0	0	60	
Scottie-DX	1	0	0	1	1	0	0	76#	
SC2 col 30s	0	1	1	0	0	1	1	51	
SC2 col 180s	0	1	1	0	1	1	1	55	
SC2 col 60s	0	1	1	1	0	1	1	59	
SC2 col 120s	0	1	1	1	1	1	1	63	
AVT col 24s *	1	0	0	0	0	0	0	64	
AVT col 90s *	1	0	0	0	1	0	0	68	
AVT col 98s *	1	0	0	1	0	0	0	72	
AVT col 188s*	1	0	0	1	1	0	0	76#	
AVT b/w 125s*	1	0	1	0	0	0	0	80	

#Scottie-Dx and AVT-188s share the same VIS-code.

Martin mode was developed by Martin H. Emmerson G3OQD /England.
 SC-1 and SC-2 converters were developed by Volker Wraase /Germany.
 The Scottie mode was developed by E.T.J. Murphy GM3SBC /Scotland.
 ROBOT is a trademark of ROBOT Research Inc. /USA.

חבור המחשב למקלט/משדר

