ZONDA	TECHNICAL SPECIFICATION	Code 1017234100	Rev.
	Model **TVLA20**	Release Date **10/07/02**	Page **1/18**

Emitted by	Approved by
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Ver.	*No PA*	*Description*	*Date*

PRODUCT TECHNICAL SPECIFICATION

Procedure to check up color TV electrical parameters

1. Audio

1.1 Output power at 10% THD

1st method: antenna input connection

a) TV setup in "PP" condition (frequency and channel factory defined)

b) Apply 60dBμV signal to antenna input, modulated with white pattern in 88% and audio signal with 1kHz frequency modulated in FM with ± 25kHz deviation.

c) Connect to the audio power amplifier output a resistive load with equivalent Ohm value of speaker used on the tested TV.

d) Connect a AC Voltmeter/Distortion Meter to the resistive load and increase volume control until Distortion Meter reading be 10%.

e) Measure voltage on the resistive load and calculate power through next equation:

$$P = (V^2/R)$$

Where "V" is voltage in VOLTS, "R" is resistive load in OHMS e "P" is power in WATTS.

2nd method: connection through external video and audio input

a) TV setup in "PP" condition.

b) Connect a color bar generator (PAL-M system) to video input.

c) Connect an audio generator with $500mV_{AC}$ level and 400Hz sinusoidal frequency to audio input.

d) Connect to the power amplifier output a resistive load with equivalent Ohm value of speaker used on the tested TV.

e) Connect a AC Voltmeter/Distortion Meter to the resistive load and increase volume control until Distortion Meter reading be 10%. Measure voltage on the resistive load and calculate power through next equation:

$$P = (V^2/R)$$

Where "V" is voltage in VOLTS, "R" is resistive load in OHMS and "P" is power in WATTS.

Minimum	Nominal	Maximum	Unit
2.00	2.90	-	W

1.2 Audio Residual

a) TV setup in "PP" condition.
b) Apply 60dBμV signal (frequency and channel factory defined) to antenna input modulated with white pattern at 88% and audio signal with 1kHz frequency modulated in FM with 25kHz deviation.
c) Connect an oscilloscope to power amplifier output (connect for the speaker).
d) Adjust volume to minimum.
e) Use the oscilloscope to measure peak-to-peak voltage, in Volt peak-to-peak (Vpp).

Minimum	Nominal	Maximum	Unit
-	25	500	mVpp

1.3 Audio frequency response in TV's without tone control

a) TV setup in "PP" condition.
b) Connect a color bar generator (PAL-M system) to video-in.
c) Connect to the audio input TV - an audio generator adjust to 500 mVac level, and sine wave 1kHz..
d) Connect to the output power amplifier a resistive load with the same value of the impedance speaker.
e) Connect na AC voltmeter over the resistive load and adjust volume control until obtain 1 Vac **)**.
f) Realign the audio generator to 100 Hz sine wave at the same level (500 mVac).
g) Read the new voltage in the resistive load and calculate the change in dB through next equation:

$$A_{(100Hz)}=20\ log(V_{LF}\ /V_{REF})$$

The result is defined in **"Decibel units "**

h) Readjust the audio generator frequency to 10 kHz at the same level.
i) Read the new voltage Vh at the resistive load and calculate the change in dB through the next equation:

$$A_{(10kHz)}=20log(V_{HF}/V_{REF})$$

Condition	Minimum	Nominal	Maximum	Unit
100Hz	-4,00	0,00	+2,00	dB
10kHz	-5,00	-1,00	+3,00	dB

1.4 Áudio frequency response for the stereo television set with tonality control

a) Repeat the above procedures (item 1.3) for the following additional conditions:

Condition		Minimum	Nominal	Maximum	Unit
Bass control in max. position	100Hz	-	-	-	dB
Treble control in the meddle.	10kHz	-	-	-	dB
Bass control in the min position.	100Hz	-	-	-	dB
Treble control in the meddle.	10kHz	-	-	-	dB
Bass contr. in the meddle post..	100Hz	-	-	-	dB
Treble control int the min pos..	10kHz	-	-	-	dB
Bass contr. in the meddle pos.	100Hz	-	-	-	dB
Treble contr in the max. pos..	10kHz	-	-	-	dB

1.5 Channel separation in Stereo reception for the stereo television set

a) TV setup in PP condition.
b) Apply a 60dBμV signal (frequency and channel factory defined) with 88% video modulation and audio stereo carrier modulation within the standard “MTS” (BTSC).
c) Connect an AC double voltmeter at the audio output L-R.
d) Adjust the volume control to max. and the tremble, bass and balance to middle position.

> ***Note:***
> ✓ *Disconnect the speakers for more comfortable work.*

e) Adjust the stereo generator for left channel only – with 30% modulation of 300 Hz sine wave and 7.5 kHz deviation.
f) Read the Double Voltammeter value Vac corresponding of Left and Right channel and calculate the stereo separation trough the equate:

$$Sep_{(300Hz)\ L®R} = 20 \log (V_L/V_R)$$

g) Adjust the stereo generator for left channel only – with 30% modulation of 3kHz sine wave and 7.5 kHz deviation.

$$Sep_{(3kHz)\ L®R} = 20 \log (V_L/V_R)$$

h) Repeat the procedures e, f and g, and now select Right channel only, at the same conditions above mentioned.

$$Sep_{(300Hz)\ R®L} = 20 \log (V_R/V_L)$$

$$Sep_{(3kHz)\ R®L} = 20 \log (V_R/V_L)$$

Condition	Minimum	Nominal	Maximum	Unit
$Sep_{(300Hz)\ L \rightarrow R}$	-	-	-	dB
$Sep_{(3kHz)\ L \rightarrow R}$	-	-	-	dB
$Sep_{(300Hz)\ R \rightarrow L}$	-	-	-	dB
$Sep_{(3kHz)\ R \rightarrow L}$	-	-	-	dB

1.6 Output and distortion level of S.A.P. signal for the stereo television set.

a) TV setup in PP condition.
b) Apply a 60dBµV signal (Frequency and channel factory defined) with 88% video modulation, and Stereo / S.A.P audio signal carrier in accordance of standard "MTS" (BTSC).
c) Connect na AC volt-distortion-meter at the Left channel (pin 27 – IC604) small signal output.

> ***Note:***
> ✓ *Disconnect the speakers for more comfortable work.*

d) Adjust the Stereo/SAP generator for 400 Hz sine wave and 100% modulation.
e) Active the SAP function in the Test Television.
f) Read Vac at the AC volt-distortion-meter.
g) Repeat all above procedures, connecting the volt-distortion-meter at the Right channel (pin 21 – IC604) small signal audio output.

	Minimum	Nominal	Maximum	Unit
Output Level	-	490	-	mV_{AC}
Distortion (THD)	-	-	2	%

1.7 AM Rejection

a) TV setup in PP condition.
b) Connect at the IF sound input a FM generator adjust to 4.5 MHz modulated with 400 Hz sine wave and +- 25 kHz deviation and 90 dBuV level.
c) Connect na AC voltmeter in the audio detector output (after the emphasis circuit) and read the VFM tension.
d) Connect at the IF sound input a AM generator pre-adjust to 4.5 MHz 40% modulated with 400 Hz sine wave, and 90 dBuV level.
e) Read the Vam value in the voltmeter.

AM rejection will now be calculated by the equation:

$$Rej_{AM} = 20 \log(V_{FM}/V_{AM})$$

> ***Note:***
> ✓ Because this parameter is designed to define only the one circuit TV perform, the startup conditions adjust and what's circuits will be supplied, it will be defined separately for each one model.

Minimum	Nominal	Maximum	Unit
30,00	40,00	60,00	dB

2. POWER SUPPLY

2.1 Consume

Consume

a) Connect the TV under test through a electronic wattmeter at the 234Vac/60Hz line.

b) Turn-on the TV set and apply a 60dBμV (the preferred channel must to be defined by the production unit), modulated with a 88% video signal white pattern, and a +- 25 kHz deviation FM carrier with a 1kHz sine wave audio signal.

c) Adjust for max. the bright, contrast and volume controls, and read the Sink Power show at the wattmeter.

d) Active Standby mode and read again the Sink power.

e) Repeat all below procedures, connecting now the television under test to a 117Vac/60 Hz line.

Condition	Minimum	Nominal	Maximum	Unit
$117V_{AC}$ "PP"	-	78	80	W
$117V_{AC}$ Stand-By	-	9	10	W
$234V_{AC}$ "PP"	-	80	85	W
$234V_{AC}$ Stand-By	-	13	15	W

2.2 Main Power Supply

a) Connect the TV set under test to 117Vac/60Hz line.

b) Turn On the TV set and apply a 60dBμV RF signal modulated by a white pattern video signal and a 4.5 MHz +- 25 kHz deviation FM signal modulated by a 1kHz audio signal (the preferred channel will be defined by the local unit).

c) Adjust the TV to a "PP" condition.

d) Utilizing a electronic DC voltmeter (over 10 M input impedance), read the next point in the power supply:

Condition	Test Point	Minimum	Nominal	Maximum	Unit
"PP" $117V_{AC}$	+B 103V (Cathode of D807)	102.00	103.00	104.00	V_{DC}
"PP" $117V_{AC}$	+B 16V (Cathode of D808)	14.00	15.50	16.50	V_{DC}

2.3 Main Power Supply Regulation with fluctuation of the line

a) Repeat the procedure of the item 2.2 when the television is connected to the electric net with 100VAC/60Hz and also 240VAC/60Hz.

Condition	Test Point	Minimum	Nominal	Maximum	Unit
"PP" 240V_{AC}	+B 103V (Cathode of D807)	102.00	103.00	104.00	V_{DC}
"PP" 240V_{AC}	+B 16V (Cathode of D808)	14.00	15.50	16.50	V_{DC}

Condition	Test Point	Minimum	Nominal	Maximum	Unit
"PP" 100V_{AC}	+B 103V (Cathode of D807)	102.00	103.00	104.00	V_{DC}
"PP" 100V_{AC}	+B 16V (Cathode of D808)	14.00	15.50	16.50	V_{DC}

2.4 Auxiliary power supply from Fly Back Transformer.

a) Connect the TV under test to a 117 Vac/60 Hz line.
b) Turn On the TV set and apply a 60dBµV RF signal modulated by a white pattern video signal and a 4.5 MHz +- 25 kHz deviation FM signal modulated by a 1kHz audio signal (Frequency and channel factory defined).
c) Adjust the TV to a "PP" condition.
d) Utilizing a electronic DC voltmeter (over 10 M input impedance), read the auxiliary power supply from Fly-Back transformer :
e) Read the RMS voltage apply to the CRT heat., Utilizing a true RMS voltmeter.
f) When exist, read the auxiliary wind Peak to peak voltage, utilizing an oscilloscope.

Condition	Test Point	Minimum	Nominal	Maximum	Unit
"PP" 117V_{AC}	E+12V (Cathode do D402)	+11.00	+12.00	+13.00	V_{DC}
"PP" 117V_{AC}	E-12V (Anode do D403)	-11.00	-12.00	-13.00	V_{DC}
"PP" 117V_{AC}	E180V (Anode do D404)	165.00	175.00	185.00	V_{DC}
"PP" 117V_{AC}	Heater (RMS) (Pins 9 and 10 of V901)	5.70	6.30	6.90	V_{RMS}

2.5 High Voltage (EHT)

a) Connect a DC voltmeter to the resistor wired to the Fly Back ABL pin (the position and value of this resist is defined by each model.

b) Connect a high voltage electronic DC voltmeter (over 1G impedance) in the electronic tube high voltage plug.

c) Adjust the bright, color and contrast controls to minimum and read the high voltage E.H.T. ($I_A$min).

d) Adjust the bright control to the maximum position, contrast control to the maximum position and monitoring the voltage through the ABL resistor, adjust the bright control until the DC voltage reached the specific value. The anode electric current will now be define by the following equation:

$$I_A=(V_{ABL}/R_{ABL})$$

Read the high voltage E.H.T. in this conditions ($I_A$min.).

Condition	Minimum	Nominal	Maximum	Unit
$I_A$min.	24.30	25.50	26.90	kV_{DC}
I_A=1mA	22.40	23.60	25.00	kV_{DC}

2.6 Dielectric Rigid

Adjust the HI_POT equipment to 1500 Vac voltage, and the desired test current, in accordance with the below specification table. When the TV set have a power switch, make sure that this switch stay in the ON mode. Connect the ground terminal of the test equipment in both pins of the line cord TV, and apply the HI-POT terminal (1.5KV) in every extern metal parts of the TV under test for one minute. In this condition the electric current must be equal or inferior that shown in the below specific table

Condition	Minimum	Nominal	Maximum	Unit
$1500V_{AC}$	-	-	2,00	mA_{AC}

3. Frame geometric

3.1 Wide and height of the frame

Preparation:

a) Connect the receiver under test to a $117V_{AC}$ line.

b) TV setup in PP condition.

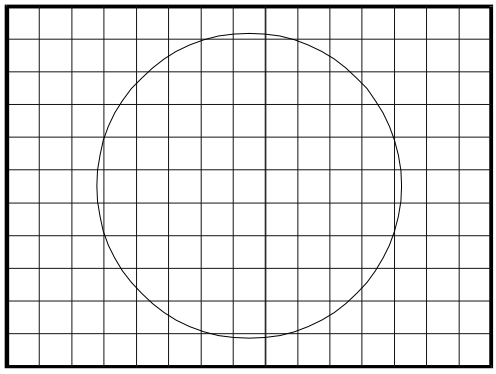
c) Apply to the antenna input a 60dBµV signal – 88% modulated with the CROSSHATCH pattern (The preferred channel will be defined by the fabric unit)

d) Adjust the contrast control so that average Iabl is the same to 750µA (Iabl=750µA).

$$I_{ABL}=(V_{ABL}/R_{ABL})$$

e) Observe the pattern image and make a block count in the horizontal and vertical direction.

Figure A



	Minimum	Nominal	Maximum	Unit
Height (PAL-N)	10,07	10,60	11,13	Blocks
Wide (PAL-N)	13,96	14,70	15,43	Blocks
Height(PAL-M)	10,26	10,80	11,34	Blocks
Wide (PAL-M)	14,15	14,90	15,64	Blocks

3.2 Frame centralization

Preparation:

a) Connect the receiver under test to a 117 V_{AC} line.
Turn On the TV and position the bright and contrast control to the maximum, and the saturation and volume controls to the minimum position. Wait for a pre-heating period.

b) Apply a CIRCLE pattern 60dBµV signal with 88% modulation (The preferred channel will be define by the fabric unit).

c) Position to "nominal" the bright and contrast controls.

d) For the next reading, please observe the figure B.

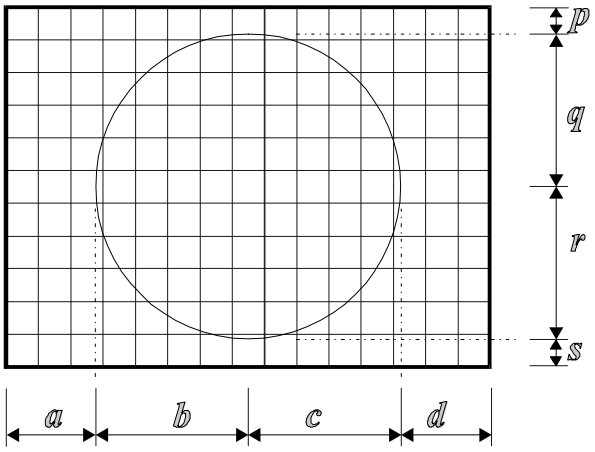
e) Observe the image and make the measures (in centimeters) of the distances a, b, c and d.

f) Apply the following formula to calculate the horizontal centralization.
ç(a/b)-(d/c)½

g) Observe the image and make the measures (in centimeters) of the distances p, q, r and s.

h) Apply the formula to calculate the vertical centralization.
ê(p/q)-(s/r)½

Figure B



	Minimum	Nominal	Maximum	Unit
|(a/b)-(d/c)|	-	0,00	0,10	
|(p/q)-(s/r)|	-	0,00	0,20	

3.3 FRAME ASPECT RELATED

a) Connect the receiver under test to a $117V_{AC}$ line.
Turn on the TV and adjust bright and contrast control to max. position, saturation and volume to min. Position. Wait for the heat period.

b) Apply to the antenna input a 60dBµV level signal with 88% modulated PHILIPS pattern (Frequency and channel factory defined)l

c) Adjust bright and contrast control to nominal position

d) For the next reads, please utilizes figure C for reference.

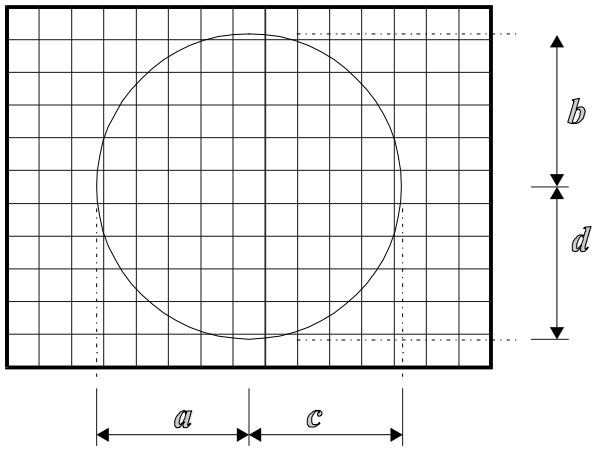
e) Observe the screen pattern and check the distances a, b, c, d (in centimeters)

f) Apply the formula:

***M = (a + b + c + d) / 4**, and verify the proportion a/M, b/M, c/M e d/M.*

Check for systems PAL-M and PAL-N

Figure C



	Minimum	Nominal	Maximum	Unit
a/M	0,95	1,00	1,05	
b/M	0,95	1,00	1,05	
c/M	0,95	1,00	1,05	
d/M	0,95	1,00	1,05	

3.4 Horizontal Linearity

a) Connect the receiver under test in $117V_{AC}$ line.
Turn on the TV and adjust bright and contrast control to max. position, saturation and volume to min. Position. Wait for the heat period.

b) Apply to the antenna input a 60dBµV level signal with 88% modulated PHILIPS pattern (Frequency and channel factory defined)l

c) Adjust bright and contrast control to nominal position

d) For the next reads, please take references by ***figure D.***

e) Observe the screen pattern and check the distances An - 14 blocks (in centimeters)

f) Calculate the middle distances through blocks

$$M = An/14.$$

Horizontal deviation between major blocks (DH_M)

Read first the 14 blocks wide (from b1 to b14) and select the biggest read (b_{max}) for calculate the deviation:

$$DH_M = b_{máx}/M$$

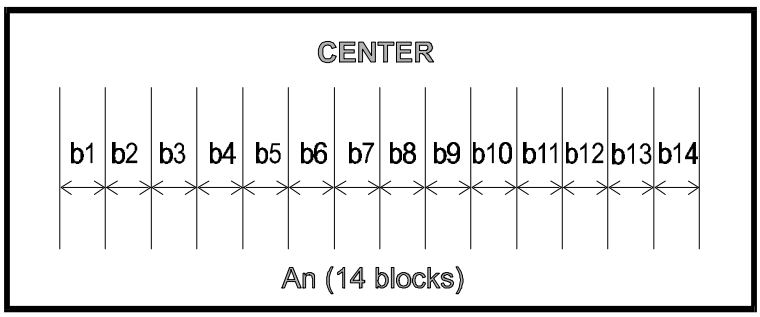
Minor Horizontal deviation between blocks (DH_m)

Read first the 14 blocks wide (from b1 to b14) and select the smallest read (b_{min}) for calculate the deviation:

$$DH_m = b_{mín}/M$$

(*)Check for signals PAL-M and PAL-N

Figure D



PAL-M	Minimum	Nominal	Maximum	Unit
DH_M	-	1,10	1,30	
DH_m	0,70	0,95	-	

PAL-N	Minimum	Nominal	Maximum	Unit
DH_M	-	1,10	1,30	
DH_m	0,70	0,95	-	

3.5 Vertical Linearity

a) Connect the receiver to a $117V_{AC}$ line
Turn on the TV and adjust bright and contrast control to max. position, saturation and volume to min. Position. Wait for the heat period (please see the specification for this model).
b) Apply to the antenna input a 60dBµV level signal with 88% modulated PHILIPS pattern (Frequency and channel factory defined).
c) Adjust bright and contrast control to nominal position
d) For the next reads, please take references by ***figure E***
e) Observe the screen pattern and check the distances X –(in centimeters)
f) Calculate the middle distances through blocks:

$$a_{medium}=X/10.$$

Major vertical deviation between blocks (DV_M).
Read first the 10 blocks height (from a1 to a10) and select the biggest of them (a_{max}) for calculate the deviation :

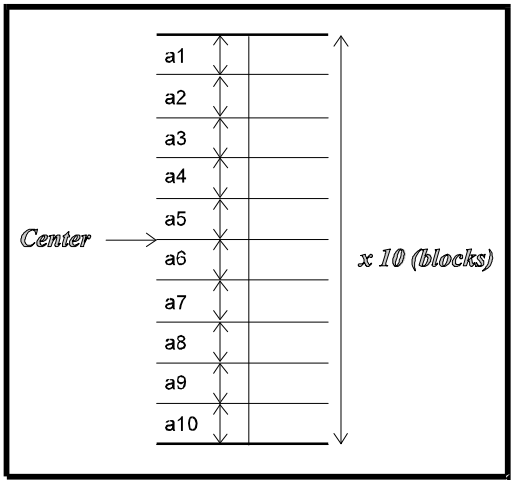
$$DV_M = a_{max}/a_{medium}$$

Minor vertical deviation between blocks (DV_m)
Read first the 10 blocks height (from a1 to a10) and select the smallest of them (a_{min}) for calculate the deviation:

$$DV_m = a_{min}/a_{medium}$$

(*)Check for signals PAL-M and PAL-N

Figure E



PAL-M	Minimum	Nominal	Maximum	Unit
DV_M	-	1	1,40	
DV_m	0,60	1	-	

PAL-N	Minimum	Nominal	Maximum	Unit
DV_M	-	1	1,40	
DV_m	0,60	1	-	

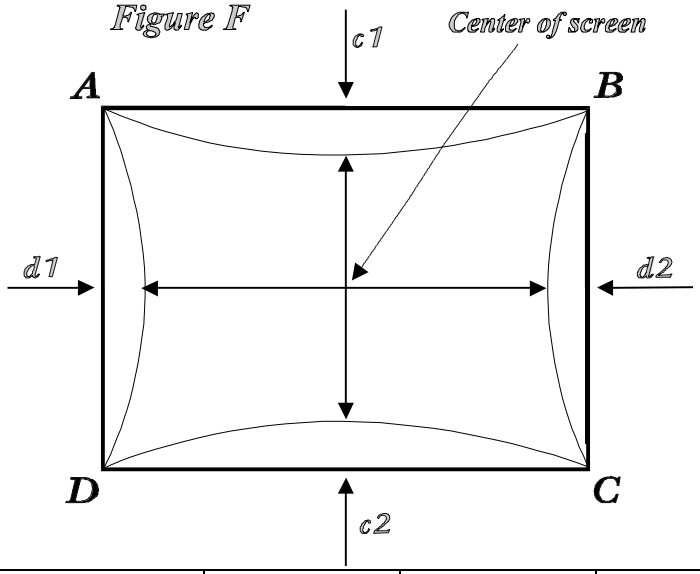
3.6 Pin-Cushion & Shape of Raster

a) Connect the receiver to a $117V_{AC}$ line.
Turn on the TV and adjust bright and contrast control to max. position, saturation and volume to min. Position. Wait for the heat period (please see the specification for this model).
b) Apply to the antenna input a 60dBμV level signal with 88% modulated "CROSSHATCH" pattern (Frequency and channel factory defined)l
c) Turn the face tube to West/Lest orientation
d) Adjust bright and contrast control to "PP" position
e) For the next reads, please take references by ***figure F*** *(distances in millimeters)*
f) Observe the screen pattern, to calculate:

Top-Bottom = 2(c1 + c2)/(AD + BC) X 100
Left-Right = 2(d1 + d2)/(AB +CD) X 100

(*) Check for signals PAL-M and PAL-N

Figure F



	Minimum	Nominal	Maximum	Unit
TOP-BOTTOM	-	-	1,50	%
LEFT-RIGHT	-	-	2,00	%

4. Purity

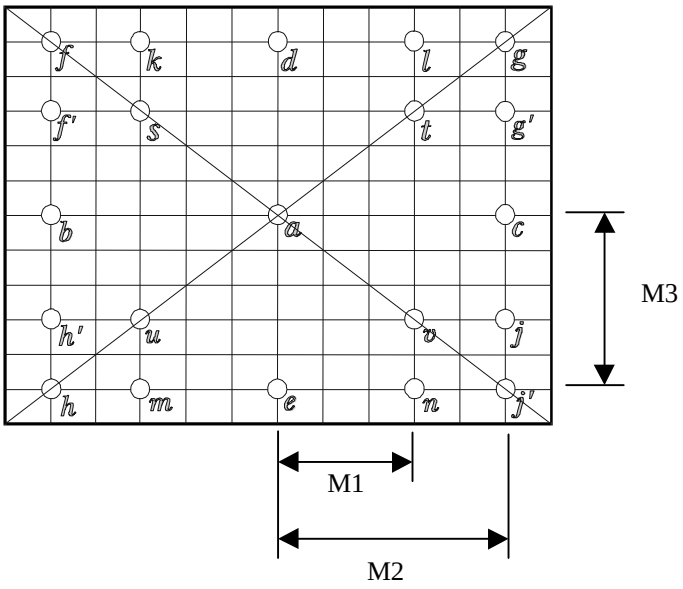
a) Connect the receiver to a $117V_{AC}$ line
Turn on the TV and adjust bright to nominal position and contrast control to min. position, saturation and volume to min. position.
b) Apply to the antenna input a 60dBμV level signal with 88% modulated "WHITE" pattern (Frequency and channel factory defined)l
c) Wait for pre-heating period (30 minutes)
d) Degauss the device appropriated.
e) Increment the contrast controls to max. position, and wait for 3 minutes
f) At a distance of 5 times the height of the screen, observe that no color dirty may appears.
g) Repeat this procedures now utilizing a red pattern.

Note:
- ✓ *If the receiver is moved during the test procedure, always degauss again the device*

5. Convergence

a) Connect the receiver to a $117V_{AC}$ line
Turn on the TV and adjust bright and contrast control to max.. position, saturation and volume to min. position. Wait for pre-heating period (please see specification for each model)
b) Apply to the antenna input a 60dBµV level signal with 88% modulated “CROSSHATCH” pattern (Frequency and channel factory defined)l
c) Turn the face tube to West/Lest orientation
d) Degauss the device properly
e) Adjust bright and contrast control to minimum position

Figura G



f) For the next reads, please take references by ***figure G*** *(distances in millimeters)*

	(mm)
M1	60
M2	120
M3	85

(*) Apply for signals PAL-M and PAL-N.

PONTO	X, Y LIMITES (mm)
a	0.4
b, c	0.9
d, e	0.9
f, g, h, j’	1.4
f’, g’, h’, j	1.2
k, l, m, n	1.0
s, t, u, v	0.8

6. Video

6.1 Sensibility and Signal /Noise Rate

a) Adjust the TV to a "PP" condition.

b) Apply to the antenna input a 60dBµV signal with 60% AM modulation, 1kHz sine wave (Frequency and channel factory defined).

c) Connect at the output video detector na AC voltmeter and read the voltage $V_{AC.}$

d) Turn off the AM modulation and read the noise level "Vr" (AC voltmeter).

e) Calculate the signal-noise rate as following:

$$S/N=20 \log (V_{AC} / V_R).$$

f) Reduce the output level signal generator till the rate S/N reach 20 dB. In this condition the output level signal generator is the sensibility in dBuV.

	Minimum	Nominal	Maximum	Unit
Sensibility	-	37,00	46,00	dBµV
S/N	40,00	50,00	-	dB

6.2 AGC circuit :

a) Apply to the antenna input a 60dBµV signal with 88% AM modulation with "WHITE" pattern (Frequency and channel factory defined), and FM sine wave 400 Hz audio modulation +-25 kHz deviation.

b) Adjust the TV to "PP" condition

c) Read the DC voltage at the tuner AGC terminal. Utilize a DC electronic voltmeter with minimum 10 MΩ impedance.

Minimum	Nominal	Maximum	Unit
3,00	4,00	5,00	V_{DC}

6.3 AFT circuit.

a) Apply to the antenna input a 60dBµV signal with 88% AM modulation with PAL-M COLOR BAR pattern (Frequency and channel factory defined), and FM sine wave 400 Hz audio modulation +-25 kHz deviation

b) Connect a oscilloscope in the output video detector and read the peak to peak burst level signal "Vb"

c) Increment the generator frequency by 500 kHz and read the new value peak to peak burst signal "Vh" and calculate the percentage as following:

$$E_H = V_H/V_B$$

d) Decrement the generator frequency by 500 kHz and repeat the procedure(c) reading the peak-to-peak burst signal V_L and calculate the percentage as following:

$$E_L = V_L/V_B$$

	Minimum	Nominal	Maximum	Unit
E_H	0,85	1	1,15	
E_L	0,85	1	1,15	

6.4 Vertical sensitivity

a) Adjust the TV to a "PP" condition.

b) Apply to the antenna input a 60dBμV signal with 88% AM modulation with PAL-M color pattern (Frequency and channel factory defined), and FM sine wave 1kHz audio modulation +-25 kHz deviation.

c) Observe the TV screen under test and reduce the output generator level until maintain the stability of the image in the vertical direction and when there is the instability of the image in the vertical direction, increase the output generator level until the stability of the image comes back in the vertical direction. At this condition the output generator level represents the vertical sensitivity in dBμV.

> ***Note.:*** *If the TV under test is two or three-system mode, repeat this procedures for the PAL-N and NTSC-M signal system.*

Condition	Minimum	Nominal	Maximum	Unit
PAL-M	-	20,00	23,00	dBμV
PAL-N	-	20,00	23,00	dBμV
NTSC-M	-	20,00	23,00	dBμV

6.5 Chrome sensibility

a) Adjust the TV to a "PP" condition.

b) Apply to the antenna input a 60dBμV signal with 88% AM modulation with PAL-M color pattern (Frequency and channel factory defined), and FM sine wave 1kHz audio modulation +-25 kHz deviation.

c) Observe the TV screen under test and reduce the output generator level until the color pattern be visible. At this condition the output generator level represents the sensibility of chrome in dBμV.

> ***Note.:*** *If the TV under test is two or three-system mode, repeat this procedures for the PAL-N and NTSC-M signal system.*

Condition	Minimum	Nominal	Maximum	Unit
PAL-M	-	28,00	30,00	dBμV
PAL-N	-	28,00	30,00	dBμV
NTSC-M	-	28,00	30,00	dBμV

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Emitted by: **MARCO ERICH TANAKA**		Approved by: **WALTER IERVOLINO JR.**	

Rev.	***N. PA***	***Description***	***Date***

CALIBRATION GUIDE FOR TV’s

> ***Note:*** *This guide is only an orientation and, for some items, may be adapted by Factory Engineering to best conform to the productive process.*

INTRODUCTION

> ***Note:***
> ✓ *It is necessary to pre-heat the TV during 15 minutes, before its calibration.*

1) *Important recommendations*
2) *Definitions of the terms*
3) *Geometry of the Image*
4) *White Balance*
5) *Screen adjustment*
6) *AGC adjustment*

How to select the FACTORY MODE

a) Short to ground pin 78 of IC101 (momentarily).
b) Select the adjustment options pressing the key **CH**⋏ or **CH**⋎ of the remote control or of the television front panel.

> ***Note:*** *All the adjustment options can be selected directly by the remote control numeric keys.*

c) Adjust the selected option pressing the key **VOL**➢ or ⋖**VOL** of the remote control or of the television front panel.
  c1) VOL➢ **-** increases registers (MAX.).
  c2) ⋖**VOL -** decreases registers (MIN.).
d) To exit the FACTORY MODE, use the key **OSD/OUT** of the remote control.

1. Important recommendations

1.1 *Before beginning the adjustments, the TV set should be a pre-heated during at least 15 minutes.*

1.2 *The positioning of the TV set should obey the magnetic parameters of South America that it is -120 vertical mG. In the practice, this is gotten with a relative precision, positioning the TV set with the face (screen) of the CRT pointing to the geographical East.*

> ***Note:*** *These cares should also be taken when CQ will analyze the TV set.*

2. Definitions of the registers

Description of service and factory registers					
Register	**Name**	**Range**		**Description**	**Default Value**
01	HSh	00	63	Horizontal shift	45
02	VSD	00	00	Vertical screen	0
03	VSl	00	63	Vertical slope	30
04	VAm	00	63	Vertical amplitude	44
05	VSh	00	63	Vertical shift	32
06	SC	00	63	S-correction	14

*The registers bellow **must be** set to the **default values**.*					
Register	**Name**	**Range**		**Description**	**Default Value**
08	TWBl	00	255	Timing of 'wide blanking'	88
09	PWLi	00	63	Peak white limiting	63
10	OSIF	00	63	Off-set IF demodulator	20
11	HzPl	00	63	Horizontal parallelogram	32
12	HBow	00	63	Horizontal bow	32
14	EW	00	63	EW width	34
15	PW	00	63	EW parabola/width	35
16	EWUC	00	63	EW upper corner parabola	35
17	EWLC	00	63	EW lower corner parabola	35
18	TC	00	63	EW trapezium	33
23	VX	00	63	Vertical zoom	25
24	VOT	00	63	Vertical Offset	28
25	TAS	00	63	Text Area Start	13
26	OEA	00	127	Odd Even Alignment	60
27	BLOR	00	63	Black level offset R	32
28	BLOG	00	63	Black level offset G	32
29	WPR	00	63	White point R	32
30	WPG	00	63	White point G	32
31	WPB	00	63	White point B	32
32	PkFr	00	3	Peaking Frequency	1
33	YDl	00	15	Luminance delay time	8
34	AGC	00	63	AGC take-over	25
35	CDc0	00	15	Colour decoder 0	4
36	CDc1	00	7	Colour decoder 1	0
37	AVS0	00	127	AV-switch 0	0
38	AVS1	00	7	AV-switch 1	0
39	Syn0	00	127	Synchronisation 0	0
40	Syn1	00	63	Synchronisation 1	16
41	Defl	00	255	Deflection	16
42	VIF0	00	255	Vision IF 0	32
43	VIF1	00	255	Vision IF 1	2
44	SND0	00	255	Sound 0	10
45	CTL0	00	255	Control 0	8
46	CTL1	00	255	Control 1	0
47	SND1	00	255	Sound 1	0
48	FEA0	00	63	Features 0	0
49	FEA1	00	127	Features 1	0
50	BRI	00	63	Brightness	32
51	CON	00	63	Contrast	63

52	COL	00	63	Color	32
53	PEA	00	63	Peaking	45

*The registers bellow **must be** set to the **default values**.*

Register	Name	Range		Description	Default Value
54	HUE	00	63	Hue	32
55	VOL	00	63	Volume	15
56	STNT	00	15	Stereo noise threshold	8
57	SPNT	00	15	SAP noise threshold	8
58	LA	00	15	Input level adjustment	7
59	ALW	00	31	Alignment for wideband	15
60	ALS	00	31	Alignment for spectral	15

Please, look the functions of registers bellow, before of change to the default value.

Description of service and factory registers

Register	Name	Range		Description	Default Value
94	STBY	00	2	Standby	1
95	AV-2	00	1	AV2-Conected	X
96	ASTU	00	3	Address Select of tuner	0
97	TUNE	00	1	Tuner protocol	X
98	INI	00	00	Initialization	0
99	VSD	00	00	Vertical screen	0

Register 94 (STBY)	
Value	**Function**
0	The TV set DON'T return to the STANDBY, after of the Power On.
1	The TV set, always return to the STANDBY, after of the Power On
2	Only to the factory. Don't use this value.

Register 95 (AV-2)	
Value	**Function**
0	1 AV input.
1	2 AV inputs.

Register 96 (ASTU)	
Value	**Function**
0	When the MAS pin of the tuner is grounded.
1	When the MAS pin of the tuner is opened.
2	When the MAS pin of the tuner is between 0.4 and 0.6V
3	When the MAS pin of the tuner is connected to the +5V.

Register 97 (TUNE)	
Value	**Function**
0	To TUNER that run with Philips protocol. (Ex. UV1336S/A)
1	To TUNER that run with Alps protocol.

Register 98 (INI)	
Value	**Function**
-	Initialize all the registers to the default value.

Register 99 (VSD)	
Value	**Function**
-	To adjust the Screen.

3. Geometry of the Image

a) Using the PM - 5515 generator, apply the crosshatch pattern with circle.

b) Adjust the bellow items, until obtaining the best circle symmetry and positioning, as well as the minor image geometric distortion:

- ✓ *Use the register (**VSl**) to adjust the Vertical slope;*
- ✓ *Use the register (**VAm**) to adjust Vertical Height;*
- ✓ *Use the register (**VSh**) to adjust Vertical position;*
- ✓ *Use the register (**VSc**) to adjust Vertical Center Linearity;*
- ✓ *Use the register (**HSh**) to adjust Horizontal position*

4. White balance

Note:

- ✓ *The cut point doesn't need adjustment, because it's automatically made by the IC101.*
- ✓ *The white adjustment is already pre-adjusted and incised in the IC101 and, thus, its adjustment is not necessary.*

Otherwise, if it is necessary to change the temperature of the white pattern, proceed in the following way:

a) Enter in the service mode.

b) Select via **CH**⋏ or **CH**⋎ the WPR (29), WPG (30) and WPB (31) functions.

c) Increase or decrease the function via **VOL**➢ or via ➢**VOL** respectively.

5. Screen adjustment

Mode 1:

a) Apply a gray scale pattern.

b) Adjust the controls to:

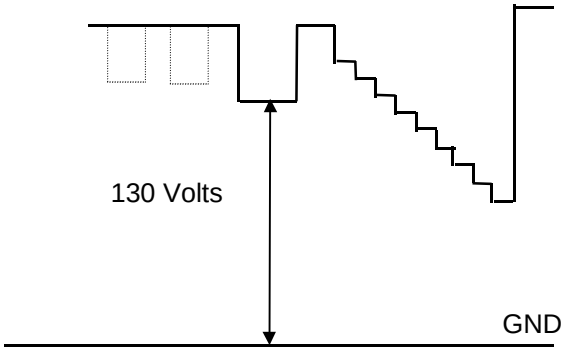
- ✓ *Brightness - 50%*
- ✓ *Contrast - 70%*

c) Measure DC voltage on the three cathodes (CRT) (one at a time) and select the highest one.

d) Connect a X100 test tip to the selected cathode (highest voltage DC).

e) Adjust the screen potentiometer to obtain 130V, according to the illustration bellow:

> ***Note.*** *The oscilloscope should be positioned in the vertical mode.*



Mode 2:

a) Select the register 99 (**VSD**).

b) Press **VOL➢** or **◅VOL** to select and adjust the screen control localized on the FBT, until the horizontal line be slightly visible on the screen center.

6. AGC adjustment

Mode 1:

- ✓ Apply a PHILIPS pattern with 60dBµV of intensity and adjust the delay until obtain 3.5V in AGC pin of tuner.

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CÓDIGO CCE	**DESCRIÇÃO**	**UND**	**QTDE**	**Ref.Posição**
1057225402	CALCO PROT.INFERIOR DIR/ESQ	PC	1,0000	
1057225403	CALCO PROT.SUPERIOR DIR/ESQ	PC	1,0000	
1057233701	CAIXA DA EMBALAGEM HPS-2007	PC	1,0000	
1067233602	MANUAL DE INSTRUCOES	PC	1,0000	
1067233701	ETIQ.IDENTIFICACAO	PC	1,0000	
1068127201	ETIQ.ADES.N.SERIE C/5	PC	5,0000	
1069100066	CERTIFICADO DE GARANTIA	PC	1,0000	
1069100067	FOLHETO OFICINAS AUTORIZADAS	PC	1,0000	
1107225106	PEPCI CONTROLE REMOTO 15PECAS	PC	0,0667	
1107225108	PEPCI PRINCIPAL	PC	0,5000	
1125707300	PTC B59209-J80-A10	PC	1,0000	PTC801
1125707400	RES.COEF.NEG.NTC 10R	PC	1,0000	NTC801
1129314099	DIODO SK-1/08 RETIFICADOR	PC	1,0000	D809
1129314099	DIODO SK-1/08 RETIFICADOR	PC	1,0000	D810
1129314099	DIODO SK-1/08 RETIFICADOR	PC	1,0000	D811
1129314099	DIODO SK-1/08 RETIFICADOR	PC	1,0000	D812
1129314199	DIODO SK-4F1/06 RETIFICADOR	PC	1,0000	D401
1129314199	DIODO SK-4F1/06 RETIFICADOR	PC	1,0000	D402
1129314199	DIODO SK-4F1/06 RETIFICADOR	PC	1,0000	D403
1129314199	DIODO SK-4F1/06 RETIFICADOR	PC	1,0000	D404
1129314199	DIODO SK-4F1/06 RETIFICADOR	PC	1,0000	D806
1129314199	DIODO SK-4F1/06 RETIFICADOR	PC	1,0000	D808
1129315899	DIODO MUR460	PC	1,0000	D807
1139608600	TRANSISTOR MPS-A42	PC	1,0000	Q401
1139999159	PHOTO COUPLER PS-2501-1-H	PC	1,0000	IC803
1139999301	TRANSISTOR BU-2508DX	PC	1,0000	Q402
1139999351	TRANSISTOR 2SK-2545	PC	1,0000	Q801
1146300143	I.C. TL431BCLP-RA	PC	1,0000	IC802
1146300143	I.C. TL431BCLP-RA	PC	1,0000	IC802
1149376899	I.C. 7805 (PLASTICO)	PC	1,0000	IC804
1149379299	I.C. TDA-1013B	PC	1,0000	IC601
1149389299	I.C.TDA-9309 AMP.VT.C/ACOPL.DC	PC	1,0000	IC301
1149392099	I.C. UC-3842BN	PC	1,0000	IC801
1155006000	FIO COBRE NU EST.0,6MM+-0,02MM	KG	0,0001	JK1
1155006000	FIO COBRE NU EST.0,6MM+-0,02MM	KG	0,0001	JK2
1155006000	FIO COBRE NU EST.0,6MM+-0,02MM	KG	0,0001	JH1
1155006000	FIO COBRE NU EST.0,6MM+-0,02MM	KG	0,0001	JH2
1155006000	FIO COBRE NU EST.0,6MM+-0,02MM	KG	0,0001	JG1
1155006000	FIO COBRE NU EST.0,6MM+-0,02MM	KG	0,0001	JG2
1155006000	FIO COBRE NU EST.0,6MM+-0,02MM	KG	0,0001	JG3
1155006000	FIO COBRE NU EST.0,6MM+-0,02MM	KG	0,0001	JF2

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CÓDIGO CCE	**DESCRIÇÃO**	**UND**	**QTDE**	**Ref.Posição**
1155006000	FIO COBRE NU EST.0,6MM+-0,02MM	KG	0,0001	JE1
1155006000	FIO COBRE NU EST.0,6MM+-0,02MM	KG	0,0001	JE2
1155006000	FIO COBRE NU EST.0,6MM+-0,02MM	KG	0,0001	JE3
1155006000	FIO COBRE NU EST.0,6MM+-0,02MM	KG	0,0001	JE4
1155006000	FIO COBRE NU EST.0,6MM+-0,02MM	KG	0,0001	JE5
1155006000	FIO COBRE NU EST.0,6MM+-0,02MM	KG	0,0001	JE6
1155006000	FIO COBRE NU EST.0,6MM+-0,02MM	KG	0,0001	JE7
1155006000	FIO COBRE NU EST.0,6MM+-0,02MM	KG	0,0001	JE8
1155006000	FIO COBRE NU EST.0,6MM+-0,02MM	KG	0,0001	JE9
1155006000	FIO COBRE NU EST.0,6MM+-0,02MM	KG	0,0001	JD1
1155006000	FIO COBRE NU EST.0,6MM+-0,02MM	KG	0,0001	JD10
1155006000	FIO COBRE NU EST.0,6MM+-0,02MM	KG	0,0001	JD11
1155006000	FIO COBRE NU EST.0,6MM+-0,02MM	KG	0,0001	JD12
1155006000	FIO COBRE NU EST.0,6MM+-0,02MM	KG	0,0001	JD13
1155006000	FIO COBRE NU EST.0,6MM+-0,02MM	KG	0,0001	JD14
1155006000	FIO COBRE NU EST.0,6MM+-0,02MM	KG	0,0001	JD15
1155006000	FIO COBRE NU EST.0,6MM+-0,02MM	KG	0,0001	JD2
1155006000	FIO COBRE NU EST.0,6MM+-0,02MM	KG	0,0001	JD3
1155006000	FIO COBRE NU EST.0,6MM+-0,02MM	KG	0,0001	JD4
1155006000	FIO COBRE NU EST.0,6MM+-0,02MM	KG	0,0001	JD5
1155006000	FIO COBRE NU EST.0,6MM+-0,02MM	KG	0,0001	JD6
1155006000	FIO COBRE NU EST.0,6MM+-0,02MM	KG	0,0001	JD7
1155006000	FIO COBRE NU EST.0,6MM+-0,02MM	KG	0,0001	JD8
1155006000	FIO COBRE NU EST.0,6MM+-0,02MM	KG	0,0001	JD9
1155006000	FIO COBRE NU EST.0,6MM+-0,02MM	KG	0,0000	JC1
1155006000	FIO COBRE NU EST.0,6MM+-0,02MM	KG	0,0000	JC10
1155006000	FIO COBRE NU EST.0,6MM+-0,02MM	KG	0,0000	JC11
1155006000	FIO COBRE NU EST.0,6MM+-0,02MM	KG	0,0000	JC12
1155006000	FIO COBRE NU EST.0,6MM+-0,02MM	KG	0,0000	JC13
1155006000	FIO COBRE NU EST.0,6MM+-0,02MM	KG	0,0000	JC14
1155006000	FIO COBRE NU EST.0,6MM+-0,02MM	KG	0,0000	JC15
1155006000	FIO COBRE NU EST.0,6MM+-0,02MM	KG	0,0000	JC16
1155006000	FIO COBRE NU EST.0,6MM+-0,02MM	KG	0,0000	JC17
1155006000	FIO COBRE NU EST.0,6MM+-0,02MM	KG	0,0000	JC18
1155006000	FIO COBRE NU EST.0,6MM+-0,02MM	KG	0,0000	JC19
1155006000	FIO COBRE NU EST.0,6MM+-0,02MM	KG	0,0000	JC2
1155006000	FIO COBRE NU EST.0,6MM+-0,02MM	KG	0,0000	JC20
1155006000	FIO COBRE NU EST.0,6MM+-0,02MM	KG	0,0000	JC21
1155006000	FIO COBRE NU EST.0,6MM+-0,02MM	KG	0,0000	JC22
1155006000	FIO COBRE NU EST.0,6MM+-0,02MM	KG	0,0000	JC23
1155006000	FIO COBRE NU EST.0,6MM+-0,02MM	KG	0,0000	JC24

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CÓDIGO CCE	**DESCRIÇÃO**	**UND**	**QTDE**	**Ref.Posição**
1155006000	FIO COBRE NU EST.0,6MM+-0,02MM	KG	0,0000	JC25
1155006000	FIO COBRE NU EST.0,6MM+-0,02MM	KG	0,0000	JC26
1155006000	FIO COBRE NU EST.0,6MM+-0,02MM	KG	0,0000	JC29
1155006000	FIO COBRE NU EST.0,6MM+-0,02MM	KG	0,0000	JC3
1155006000	FIO COBRE NU EST.0,6MM+-0,02MM	KG	0,0000	JC30
1155006000	FIO COBRE NU EST.0,6MM+-0,02MM	KG	0,0000	JC31
1155006000	FIO COBRE NU EST.0,6MM+-0,02MM	KG	0,0000	JC32
1155006000	FIO COBRE NU EST.0,6MM+-0,02MM	KG	0,0000	JC34
1155006000	FIO COBRE NU EST.0,6MM+-0,02MM	KG	0,0000	JC4
1155006000	FIO COBRE NU EST.0,6MM+-0,02MM	KG	0,0000	JC5
1155006000	FIO COBRE NU EST.0,6MM+-0,02MM	KG	0,0000	JC7
1155006000	FIO COBRE NU EST.0,6MM+-0,02MM	KG	0,0000	JC8
1155006000	FIO COBRE NU EST.0,6MM+-0,02MM	KG	0,0000	JC9
1155006000	FIO COBRE NU EST.0,6MM+-0,02MM	KG	0,0000	JC901
1155006000	FIO COBRE NU EST.0,6MM+-0,02MM	KG	0,0000	JC902
1155006000	FIO COBRE NU EST.0,6MM+-0,02MM	KG	0,0000	JC903
1155006000	FIO COBRE NU EST.0,6MM+-0,02MM	KG	0,0000	JB1
1155006000	FIO COBRE NU EST.0,6MM+-0,02MM	KG	0,0000	JB2
1155006000	FIO COBRE NU EST.0,6MM+-0,02MM	KG	0,0000	JB3
1155006000	FIO COBRE NU EST.0,6MM+-0,02MM	KG	0,0000	JB4
1155006000	FIO COBRE NU EST.0,6MM+-0,02MM	KG	0,0000	JB5
1155006000	FIO COBRE NU EST.0,6MM+-0,02MM	KG	0,0000	JB6
1155006000	FIO COBRE NU EST.0,6MM+-0,02MM	KG	0,0000	JB7
1155006000	FIO COBRE NU EST.0,6MM+-0,02MM	KG	0,0000	JA1
1160300459	CABO FRAY 24AWG 6V 400MM	PC	1,0000	CN501
1161300528	CABO FRAY 24AWG 7VIAS PR 150MM	PC	1,0000	CN701
1161300529	CABO FRAY 24AWG 4VIAS PR 150MM	PC	1,0000	CN602
1183510092	RES.METAL FILME 1/2W 10R 5% N	PC	1,0000	R826
1183510192	RES.METAL FILME 1/2W 100R 5% N	PC	1,0000	R211
1183510192	RES.METAL FILME 1/2W 100R 5% N	PC	1,0000	R302
1183510192	RES.METAL FILME 1/2W 100R 5% N	PC	1,0000	R303
1183510192	RES.METAL FILME 1/2W 100R 5% N	PC	1,0000	R508
1183510192	RES.METAL FILME 1/2W 100R 5% N	PC	1,0000	R509
1183510192	RES.METAL FILME 1/2W 100R 5% N	PC	1,0000	R510
1183510192	RES.METAL FILME 1/2W 100R 5% N	PC	1,0000	R701
1183510192	RES.METAL FILME 1/2W 100R 5% N	PC	1,0000	R702
1183510192	RES.METAL FILME 1/2W 100R 5% N	PC	1,0000	R709
1183510192	RES.METAL FILME 1/2W 100R 5% N	PC	1,0000	R712
1183510192	RES.METAL FILME 1/2W 100R 5% N	PC	1,0000	R713
1183510192	RES.METAL FILME 1/2W 100R 5% N	PC	1,0000	R718
1183510192	RES.METAL FILME 1/2W 100R 5% N	PC	1,0000	R719

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CÓDIGO CCE	**DESCRIÇÃO**	**UND**	**QTDE**	**Ref.Posição**
1183510192	RES.METAL FILME 1/2W 100R 5% N	PC	1,0000	R832
1183510217	FUSISTOR 1/2W 1K J MG	PC	1,0000	FR803
1183510292	RES.METAL FILME 1/2W 1K 5% N	PC	1,0000	R507
1183510292	RES.METAL FILME 1/2W 1K 5% N	PC	1,0000	R769
1183510292	RES.METAL FILME 1/2W 1K 5% N	PC	1,0000	R819
1183510292	RES.METAL FILME 1/2W 1K 5% N	PC	1,0000	R905
1183510292	RES.METAL FILME 1/2W 1K 5% N	PC	1,0000	R909
1183510292	RES.METAL FILME 1/2W 1K 5% N	PC	1,0000	R914
1183510292	RES.METAL FILME 1/2W 1K 5% N	PC	1,0000	R918
1183510292	RES.METAL FILME 1/2W 1K 5% N	PC	1,0000	R923
1183510292	RES.METAL FILME 1/2W 1K 5% N	PC	1,0000	R927
1183510592	RES.METAL FILME 1/2W 1M 5% N	PC	1,0000	R806
1183512292	RES.METAL FILME 1/2W 1,2K 5% N	PC	1,0000	R112
1183515192	RES.METAL FILME 1/2W 150R 5% N	PC	1,0000	R814
1183515292	RES.METAL FILME 1/2W 1,5K 5% N	PC	1,0000	R304
1183515292	RES.METAL FILME 1/2W 1,5K 5% N	PC	1,0000	R305
1183515292	RES.METAL FILME 1/2W 1,5K 5% N	PC	1,0000	R802
1183515292	RES.METAL FILME 1/2W 1,5K 5% N	PC	1,0000	R831
1183515392	RES.METAL FILME 1/2W 15K 5% N	PC	1,0000	R631
1183515992	RES.METAL FILME 1/2W 1,5R 5% N	PC	1,0000	R306
1183518192	RES.METAL FILME 1/2W 180R 5% N	PC	1,0000	R809
1183518292	RES.METAL FILME 1/2W 1,8K 5% N	PC	1,0000	R804
1183518292	RES.METAL FILME 1/2W 1,8K 5% N	PC	1,0000	R807
1183518392	RES.METAL FILME 1/2W 18K 5% N	PC	1,0000	R208
1183518392	RES.METAL FILME 1/2W 18K 5% N	PC	1,0000	R209
1183518392	RES.METAL FILME 1/2W 18K 5% N	PC	1,0000	R414
1183522092	RES.METAL FILME 1/2W 22R 5% N	PC	1,0000	R416
1183522192	RES.METAL FILME 1/2W 220R 5% N	PC	1,0000	R808
1183522292	RES.METAL FILME 1/2W 2,2K 5% N	PC	1,0000	R106
1183522292	RES.METAL FILME 1/2W 2,2K 5% N	PC	1,0000	R107
1183522292	RES.METAL FILME 1/2W 2,2K 5% N	PC	1,0000	R108
1183522292	RES.METAL FILME 1/2W 2,2K 5% N	PC	1,0000	R109
1183522292	RES.METAL FILME 1/2W 2,2K 5% N	PC	1,0000	R110
1183522292	RES.METAL FILME 1/2W 2,2K 5% N	PC	1,0000	R111
1183522292	RES.METAL FILME 1/2W 2,2K 5% N	PC	1,0000	R210
1183522292	RES.METAL FILME 1/2W 2,2K 5% N	PC	1,0000	R603
1183522292	RES.METAL FILME 1/2W 2,2K 5% N	PC	1,0000	R604
1183522292	RES.METAL FILME 1/2W 2,2K 5% N	PC	1,0000	R803
1183527392	RES.METAL FILME 1/2W 27K 5% N	PC	1,0000	R404
1183527992	RES.METAL FILME 1/2W 2,7R 5% N	PC	1,0000	R308
1183527992	RES.METAL FILME 1/2W 2,7R 5% N	PC	1,0000	R309

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CÓDIGO CCE	**DESCRIÇÃO**	**UND**	**QTDE**	**Ref.Posição**
1183533192	RES.METAL.FILME 1/2W 330R 5% N	PC	1,0000	R307
1183533392	RES.METAL FILME 1/2W 33K 5% N	PC	1,0000	R770
1183533392	RES.METAL FILME 1/2W 33K 5% N	PC	1,0000	R805
1183533992	RES.METAL FILME 1/2W 3,3R 5% N	PC	1,0000	R617
1183533992	RES.METAL FILME 1/2W 3,3R 5% N	PC	1,0000	R824
1183539192	RES.METAL FILME 1/2W 390R 5% N	PC	1,0000	R408
1183539392	RES.METAL FILME 1/2W 39K 5% N	PC	1,0000	R415
1183547092	RES.METAL FILME 1/2W 47R 5% N	PC	1,0000	R706
1183547392	RES.METAL.FILME 1/2W 47K 5% N	PC	1,0000	R818
1183547492	RES.METAL.FILME 1/2W 470K 5% N	PC	1,0000	R419
1183568192	RES.METAL FILME 1/2W 680R 5% N	PC	1,0000	R102
1183568392	RES.METAL FILME 1/2W 68K 5% N	PC	1,0000	R813
1183582292	RES.METAL FILME 1/2W 8,2K 5% N	PC	1,0000	R410
1183615219	RES.COMPOS.1/2W 1,5K 5% N	PC	1,0000	R910
1183615219	RES.COMPOS.1/2W 1,5K 5% N	PC	1,0000	R919
1183615219	RES.COMPOS.1/2W 1,5K 5% N	PC	1,0000	R928
1183668519	RES.COMPOS.1/2W 6,8M K	PC	1,0000	R815
1184515345	RES.M.FILME 2W 15K 5% N MG	PC	1,0000	R904
1184515345	RES.M.FILME 2W 15K 5% N MG	PC	1,0000	R913
1184515345	RES.M.FILME 2W 15K 5% N MG	PC	1,0000	R922
1184527345	RES.METAL FILME 2W 27K 5% MG	PC	1,0000	R801
1184527845	RES.M.FILME 2W 0,27R 5% MG	PC	1,0000	R810
1184547345	RES.METAL FILME 2W 47K 5% MG	PC	1,0000	R812
1185510240	RES.M.FILME 1W 1K 5% N	PC	1,0000	R823
1185510917	FUSISTOR 1W 1R 5% MG	PC	1,0000	FR401
1185510945	RES.M.FILME 1W 1R 5% N MG	PC	1,0000	R401
1185522015	FUSISTOR 1W 22R 5%	PC	1,0000	FR901
1185547012	RES.METAL FILME 1W 47R 5% N	PC	1,0000	R113
1185547012	RES.METAL FILME 1W 47R 5% N	PC	1,0000	R830
1185547145	RES.METAL FILME 1W 470R 5% MG	PC	1,0000	R207
1185547145	RES.METAL FILME 1W 470R 5% MG	PC	1,0000	R820
1187522040	RES.METAL FILME 3W 22R 5% N	PC	1,0000	R822
1187522045	RES.M.FILME 3W 22R 5% N MG	PC	1,0000	R821
1187556245	RES.M.FILME 3W 5,6K MG	PC	1,0000	R411
1189111331	RES.PRECISAO 0,6W 113K 0,5%	PC	1,0000	R816
1189128231	RES.PRECISAO 0,6W 2,8K 0,5%	PC	1,0000	R817
1189139331	RES.PRECISAO 0,4W 39K 1% N	PC	1,0000	R301
1244331794	C.C.D. N2200 330PF/2KV K	PC	1,0000	C417
1244472641	C.C.D.Y5P 4,7KPF/1KV K (6LR)	PC	1,0000	C819
1244561794	C.C.D.SL 560PF>=2KV J/K	PC	1,0000	C821
1265104074	C.POLYPRO 100KPF/250VAC K X3	PC	1,0000	C801

1017234100	TV A CORES 20" TVLA 20			
CÓDIGO CCE	**DESCRIÇÃO**	**UND**	**QTDE**	**Ref.Posição**
1265123952	CAP.POLYPRO MET. 12KPF/1,6KV J	PC	1,0000	C418
1265123953	CAP.POLYPRO MFP 12KPF/2KV J	PC	1,0000	C418
1265123955	CAP.POLYPRO MKP 12KPF/2KV J	PC	1,0000	C418
1265504552	CAP.POLYPRO 500KPF/250V J	PC	1,0000	C416
1271205200	RECEPTOR IR 180º (36KHZ)	PC	1,0000	RM701
1271503800	SINTONIZADOR 181CH UV-1336S/AF	PC	1,0000	TU101
1290330921	ELCO 33UF/160V M 10x20mm	PC	1,0000	C829
1290470921	ELCO 47uF/160V M 12,5x25mm HR	PC	1,0000	C825
1291220017	ELCO 22UF/250V M 12,5X25	PC	1,0000	C908
1292151054	ELCO 150UF/385V 22X40 SNAP IN	PC	1,0000	C805
1311604800	BOBINA DEMAGNETIZADORA	PC	1,0000	BOB801
1312400100	BOBINA FILTRO DE LINHA	PC	1,0000	LF801
1319953000	INDUTOR 33UH	PC	1,0000	L803
1319959400	INDUTOR FIXO 88uH ± 10%	PC	1,0000	L402
1320030102	TRANSISTOR BC337/16	PC	1,0000	Q101
1320030102	TRANSISTOR BC337/16	PC	1,0000	Q802
1320030102	TRANSISTOR BC337/16	PC	1,0000	Q804
1320090500	TRANSISTOR BF422	PC	1,0000	Q901
1320090500	TRANSISTOR BF422	PC	1,0000	Q903
1320090500	TRANSISTOR BF422	PC	1,0000	Q905
1320091100	TRANSISTOR BF421	PC	1,0000	Q902
1320091100	TRANSISTOR BF421	PC	1,0000	Q904
1320091100	TRANSISTOR BF421	PC	1,0000	Q906
1330104106	MYLLARCAP 100KPF/63V K	PC	1,0000	C301
1330104106	MYLLARCAP 100KPF/63V K	PC	1,0000	C636
1330104421	C.POLYMET 100KPF/250V J	PC	1,0000	C411
1330224222	C.POLYMET 220KPF/100V K	PC	1,0000	C303
1330273103	C.POLYMET 27KPF/63V J	PC	1,0000	C809
1330473521	C.POLYMET 47KPF/400V K	PC	1,0000	C424
1330474904	C.POLYMET 470KPF/63V K	PC	1,0000	C827
1339332100	C.POLYMET 3,3KPF/63V K MINIBLU	PC	1,0000	C808
1339473104	C.POLYMET 47KPF/63V K MINIBLUE	PC	1,0000	C810
1353002400	TRAFO DRIVE TD-14	PC	1,0000	T401
1355217900	TRAFO FLY BACK TAT-2012A	PC	1,0000	T402
1356005000	TRAFO CHAVEAMENTO	PC	1,0000	T801
1360101302	C.C.D.NPO 100PF>=50V K	PC	1,0000	C826
1363101600	C.C.D. Y5E 100PF/500V K	PC	1,0000	C410
1363102300	C.C.D.Y5P 1KPF>=50V K	PC	1,0000	C822
1363102300	C.C.D.Y5P 1KPF>=50V K	PC	1,0000	C824
1363102601	C.C.D.Y5P 1KPF>=500V K	PC	1,0000	C409
1363102601	C.C.D.Y5P 1KPF>=500V K	PC	1,0000	C420

1017234100	TV A CORES 20" TVLA 20			
CÓDIGO CCE	**DESCRIÇÃO**	**UND**	**QTDE**	**Ref.Posição**
1363102601	C.C.D.Y5P 1KPF>=500V K	PC	1,0000	C421
1363102601	C.C.D.Y5P 1KPF>=500V K	PC	1,0000	C833
1363102802	C.C.D. Y5F 1KPF/2KV K	PC	1,0000	C909
1363181301	CCD Y5P 180PF/100V K	PC	1,0000	C902
1363181301	CCD Y5P 180PF/100V K	PC	1,0000	C904
1363221600	C.C.D.Y5P 220PF>=500V K	PC	1,0000	C815
1363222302	C.C.D.Y5P 2,2KPF>=50V K	PC	1,0000	C427
1363222302	C.C.D.Y5P 2,2KPF>=50V K	PC	1,0000	C811
1363271301	CCD Y5P 270PF/100V K	PC	1,0000	C906
1363331803	C.C.D.Y5P 330PF/2KV J	PC	1,0000	C820
1363331803	C.C.D.Y5P 330PF/2KV J	PC	1,0000	C828
1363471300	C.C.D.Y5P 470PF>=50V K	PC	1,0000	C502
1363471600	C.C.D.Y5P/Y5E 470PF>=500V K	PC	1,0000	C816
1363472803	C.C.D. Y5U 4,7KPF/2KV M	PC	1,0000	C802
1363472803	C.C.D. Y5U 4,7KPF/2KV M	PC	1,0000	C803
1363472803	C.C.D. Y5U 4,7KPF/2KV M	PC	1,0000	C804
1364104103	C.C.D.Y5V/Y5U 100KPF>=25V Z	PC	1,0000	C813
1364222795	CCD.SWIT.MOD.Y5P 2,2KPF/1KV K	PC	1,0000	C430
1364223202	C.C.D.Y5U 22KPF>=50V Z	PC	1,0000	C818
1369222803	C.C.D.GKO 2K2PF/620 M	PC	1,0000	C823
1380100422	ELCO 10UF/50V K	PC	1,0000	C603
1380100422	ELCO 10UF/50V K	PC	1,0000	C718
1380100422	ELCO 10UF/50V K	PC	1,0000	C742
1380100524	ELCO 10UF/50V M	PC	1,0000	C104
1380100524	ELCO 10UF/50V M	PC	1,0000	C201
1380100526	ELCO G1 10UF/16V M	PC	1,0000	C901
1380100632	ELCO 10UF/35V M	PC	1,0000	C708
1380101224	ELCO 100UF/16V M 5x11mm	PC	1,0000	C706
1380101224	ELCO 100UF/16V M 5x11mm	PC	1,0000	C720
1380101328	ELCO 100UF/25V M	PC	1,0000	C107
1380101328	ELCO 100UF/25V M	PC	1,0000	C834
1380101328	ELCO 100UF/25V M	PC	1,0000	C836
1380101328	ELCO 100UF/25V M	PC	1,0000	C839
1380101328	ELCO 100UF/25V M	PC	1,0000	C851
1380101630	ELCO 100UF/35V M 6,3X11	PC	1,0000	C302
1380101924	ELCO 100UF/10V M	PC	1,0000	C705
1380109622	ELCO 1UF/100V M	PC	1,0000	C713
1380109622	ELCO 1UF/100V M	PC	1,0000	C404
1380109622	ELCO 1UF/100V M	PC	1,0000	C419
1380109622	ELCO 1UF/100V M	PC	1,0000	C632
1380109622	ELCO 1UF/100V M	PC	1,0000	C634

1017234100	TV A CORES 20" TVLA 20			
CÓDIGO CCE	**DESCRIÇÃO**	**UND**	**QTDE**	**Ref.Posição**
1380109622	ELCO 1UF/100V M	PC	1,0000	C647
1380109622	ELCO 1UF/100V M	PC	1,0000	C649
1380220528	ELCO 22UF/50V M	PC	1,0000	C101
1380221231	ELCO 220UF/16V M 6,3X11mm	PC	1,0000	C635
1380221231	ELCO 220UF/16V M 6,3X11mm	PC	1,0000	C838
1380221231	ELCO 220UF/16V M 6,3X11mm	PC	1,0000	C840
1380229622	ELCO 2,2UF/100V M 5x11mm	PC	1,0000	C204
1380470324	ELCO 47UF/25V M	PC	1,0000	C1
1380470324	ELCO 47UF/25V M	PC	1,0000	C651
1380470324	ELCO 47UF/25V M	PC	1,0000	C703
1380470324	ELCO 47UF/25V M	PC	1,0000	C812
1380470324	ELCO 47UF/25V M	PC	1,0000	C835
1380470324	ELCO 47UF/25V M	PC	1,0000	C850
1380471229	ELCO 470UF/16V M	PC	1,0000	C425
1380471229	ELCO 470UF/16V M	PC	1,0000	C426
1380471229	ELCO 470UF/16V M	PC	1,0000	C646
1380471333	C.ELCO 470UF/25V M 10X12,5	PC	1,0000	C831
1380479032	ELCO 4,7UF/250V	PC	1,0000	C423
1380479622	ELCO 4,7UF/100V M	PC	1,0000	C406
1380479622	ELCO 4,7UF/100V M	PC	1,0000	C756
1380479622	ELCO 4,7UF/100V M	PC	1,0000	C806
1380479622	ELCO 4,7UF/100V M	PC	1,0000	C807
1380479732	ELCO 4,7UF/160V M	PC	1,0000	C415
1408012900	CJT.CINESC S/CHIC A48EAK01X084	PC	1,0000	
1410430015	DIODO 1N-4004 RETIFICADOR	PC	1,0000	D301
1411430003	DIODO 1N-4936 RETIFICADOR RAPI	PC	1,0000	D302
1411430003	DIODO 1N-4936 RETIFICADOR RAPI	PC	1,0000	D601
1414621902	DIODO 1N-4148 75V SINAL	PC	1,0000	D101
1414621902	DIODO 1N-4148 75V SINAL	PC	1,0000	D303
1414621902	DIODO 1N-4148 75V SINAL	PC	1,0000	D405
1414621902	DIODO 1N-4148 75V SINAL	PC	1,0000	D406
1414621902	DIODO 1N-4148 75V SINAL	PC	1,0000	D407
1414621902	DIODO 1N-4148 75V SINAL	PC	1,0000	D408
1414621902	DIODO 1N-4148 75V SINAL	PC	1,0000	D701
1414621902	DIODO 1N-4148 75V SINAL	PC	1,0000	D702
1414621902	DIODO 1N-4148 75V SINAL	PC	1,0000	D801
1414621902	DIODO 1N-4148 75V SINAL	PC	1,0000	D802
1414621902	DIODO 1N-4148 75V SINAL	PC	1,0000	D803
1414621902	DIODO 1N-4148 75V SINAL	PC	1,0000	D804
1414621902	DIODO 1N-4148 75V SINAL	PC	1,0000	D805
1414621902	DIODO 1N-4148 75V SINAL	PC	1,0000	D813

1017234100	TV A CORES 20" TVLA 20			
CÓDIGO CCE	**DESCRIÇÃO**	**UND**	**QTDE**	**Ref.Posição**
1414621902	DIODO 1N-4148 75V SINAL	PC	1,0000	D814
1414621902	DIODO 1N-4148 75V SINAL	PC	1,0000	D901
1414621902	DIODO 1N-4148 75V SINAL	PC	1,0000	D902
1414621902	DIODO 1N-4148 75V SINAL	PC	1,0000	D903
1414621902	DIODO 1N-4148 75V SINAL	PC	1,0000	D904
1415166501	DIODO BZX79B22 22V	PC	1,0000	DZ804
1415166801	DIODO BZX79B9V1	PC	1,0000	DZ806
1415169301	DIODO ZENER BZX79C4V7	PC	1,0000	DZ401
1415169301	DIODO ZENER BZX79C4V7	PC	1,0000	DZ803
1415169301	DIODO ZENER BZX79C4V7	PC	1,0000	DZ805
1415169401	DIODO ZENER BZX79C5V1	PC	1,0000	DZ102
1415169501	DIODO ZENER BZX79C5V6	PC	1,0000	DZ701
1415169501	DIODO ZENER BZX79C5V6	PC	1,0000	DZ702
1415169501	DIODO ZENER BZX79C5V6	PC	1,0000	DZ703
1415169801	DIODO ZENER BZX79C8V2	PC	1,0000	DZ807
1415170901	DIODO ZENER BZX79C33V	PC	1,0000	DZ101
1415171901	DIODO ZENER BZX79C18V	PC	1,0000	DZ801
1415171901	DIODO ZENER BZX79C18V	PC	1,0000	DZ802
1415172801	DIODO BZX79B6V8 2%	PC	1,0000	DZ301
1421507200	SAW FILTER M1971M	PC	1,0000	SF101
1421507600	FILTRO CERAMICO SFSH4.5MDB	PC	1,0000	CF201
1421508100	RESSONADOR CERAM.CSTS0345MG03	PC	1,0000	X1
1425008100	CRISTAL 12,000MHZ CL=16pF HC49	PC	1,0000	X701
1427010820	FERRITE BEAD DUPLO	PC	1,0000	FB801
1427010820	FERRITE BEAD DUPLO	PC	1,0000	FB802
1427011200	BEAD 2X5X5MM	PC	1,0000	FB803
1427011200	BEAD 2X5X5MM	PC	1,0000	FB804
1449009500	CHAVE DE TOQUE 4,3MM 260g	PC	1,0000	SW701
1449009500	CHAVE DE TOQUE 4,3MM 260g	PC	1,0000	SW702
1449009500	CHAVE DE TOQUE 4,3MM 260g	PC	1,0000	SW703
1449009500	CHAVE DE TOQUE 4,3MM 260g	PC	1,0000	SW704
1449009500	CHAVE DE TOQUE 4,3MM 260g	PC	1,0000	SW705
1449009500	CHAVE DE TOQUE 4,3MM 260g	PC	1,0000	SW706
1459515500	DIODOLED VMEL1/MCE1L2/LTE3271T	PC	1,0000	LT1
1459524200	DIODO LED LTL-1CHKR 3MM	PC	1,0000	LD701
1479903734	INDUTOR FIXO 22UH K AXIAL	PC	1,0000	L102
1479906734	INDUTOR FIXO 2,2UH K AXIAL	PC	1,0000	L703
1479906734	INDUTOR FIXO 2,2UH K AXIAL	PC	1,0000	L704
1479907634	INDUTOR FIXO 5,6UH K AXIAL	PC	1,0000	L705
1479907634	INDUTOR FIXO 5,6UH K AXIAL	PC	1,0000	L706
1479907634	INDUTOR FIXO 5,6UH K AXIAL	PC	1,0000	L707

1017234100	TV A CORES 20" TVLA 20			
CÓDIGO CCE	**DESCRIÇÃO**	**UND**	**QTDE**	**Ref.Posição**
1479907634	INDUTOR FIXO 5,6UH K AXIAL	PC	1,0000	L801
1479908434	INDUTOR FIXO 12UH K AXIAL	PC	1,0000	L702
1479908634	INDUTOR FIXO 15UH K AXIAL	PC	1,0000	L201
1479910534	INDUTOR 100UH K AXIAL	PC	1,0000	L701
1490522200	CAP.SMD X7R 2,2KPF/50V K 0805	PC	1,0000	C405
1490547200	CAP.SMD X7R 4,7KPF/50V K 0805	PC	1,0000	C601
1491010104	CAP.SMD NP0 100PF/50V J 0603	PC	1,0000	C209
1491010104	CAP.SMD NP0 100PF/50V J 0603	PC	1,0000	C210
1491010104	CAP.SMD NP0 100PF/50V J 0603	PC	1,0000	C652
1491010104	CAP.SMD NP0 100PF/50V J 0603	PC	1,0000	C715
1491010104	CAP.SMD NP0 100PF/50V J 0603	PC	1,0000	C716
1491010104	CAP.SMD NP0 100PF/50V J 0603	PC	1,0000	C717
1491010104	CAP.SMD NP0 100PF/50V J 0603	PC	1,0000	C749
1491033004	CAP.SMD NP0 33PF/50V J 0603	PC	1,0000	C701
1491033004	CAP.SMD NP0 33PF/50V J 0603	PC	1,0000	C702
1491033004	CAP.SMD NP0 33PF/50V J 0603	PC	1,0000	C709
1491033004	CAP.SMD NP0 33PF/50V J 0603	PC	1,0000	C710
1491033004	CAP.SMD NP0 33PF/50V J 0603	PC	1,0000	C711
1491033004	CAP.SMD NP0 33PF/50V J 0603	PC	1,0000	C712
1492010200	CAP.SMD X7R 1KPF/50V K 0603	PC	1,0000	C305
1492010200	CAP.SMD X7R 1KPF/50V K 0603	PC	1,0000	C306
1492010200	CAP.SMD X7R 1KPF/50V K 0603	PC	1,0000	C648
1492010200	CAP.SMD X7R 1KPF/50V K 0603	PC	1,0000	C650
1492010200	CAP.SMD X7R 1KPF/50V K 0603	PC	1,0000	C714
1492010200	CAP.SMD X7R 1KPF/50V K 0603	PC	1,0000	C770
1492010200	CAP.SMD X7R 1KPF/50V K 0603	PC	1,0000	C771
1492010300	CAP.SMD X7R 10KPF/50V K 0603	PC	1,0000	C105
1492010300	CAP.SMD X7R 10KPF/50V K 0603	PC	1,0000	C106
1492010300	CAP.SMD X7R 10KPF/50V K 0603	PC	1,0000	C206
1492010300	CAP.SMD X7R 10KPF/50V K 0603	PC	1,0000	C304
1492010300	CAP.SMD X7R 10KPF/50V K 0603	PC	1,0000	C402
1492010300	CAP.SMD X7R 10KPF/50V K 0603	PC	1,0000	C637
1492010300	CAP.SMD X7R 10KPF/50V K 0603	PC	1,0000	C645
1492010300	CAP.SMD X7R 10KPF/50V K 0603	PC	1,0000	C837
1492010300	CAP.SMD X7R 10KPF/50V K 0603	PC	1,0000	C841
1492010400	CAP.SMD X7R 100KPF/16V K 0603	PC	1,0000	C102
1492010400	CAP.SMD X7R 100KPF/16V K 0603	PC	1,0000	C203
1492010400	CAP.SMD X7R 100KPF/16V K 0603	PC	1,0000	C211
1492010400	CAP.SMD X7R 100KPF/16V K 0603	PC	1,0000	C401
1492010400	CAP.SMD X7R 100KPF/16V K 0603	PC	1,0000	C408
1492010400	CAP.SMD X7R 100KPF/16V K 0603	PC	1,0000	C633

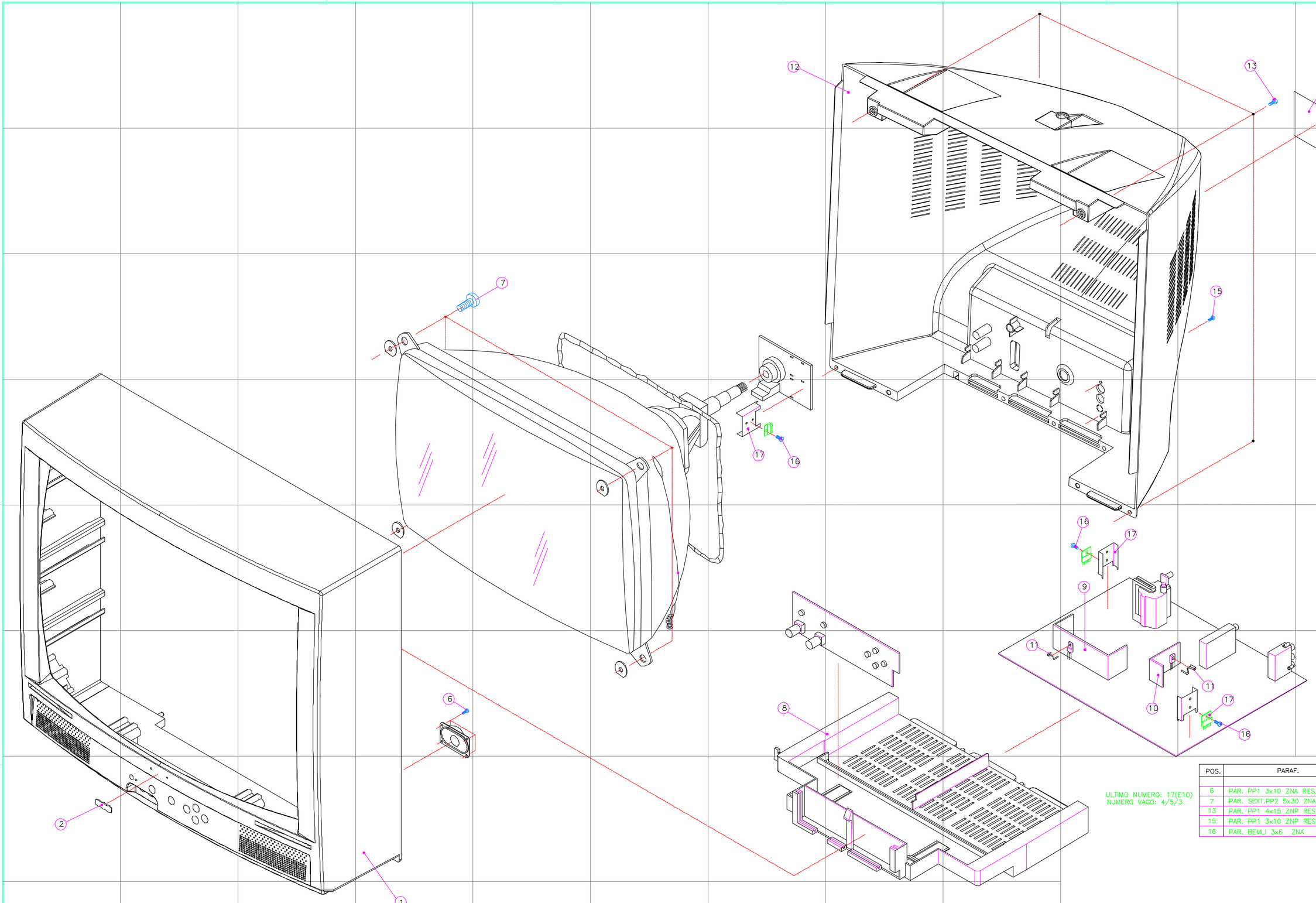
1017234100	TV A CORES 20" TVLA 20			
CÓDIGO CCE	**DESCRIÇÃO**	**UND**	**QTDE**	**Ref.Posição**
1492010400	CAP.SMD X7R 100KPF/16V K 0603	PC	1,0000	C740
1492022300	CAP.SMD X7R 22KPF/25V K 0603	PC	1,0000	C205
1492022300	CAP.SMD X7R 22KPF/25V K 0603	PC	1,0000	C260
1492022300	CAP.SMD X7R 22KPF/25V K 0603	PC	1,0000	C560
1492022300	CAP.SMD X7R 22KPF/25V K 0603	PC	1,0000	C561
1492022300	CAP.SMD X7R 22KPF/25V K 0603	PC	1,0000	C604
1492022300	CAP.SMD X7R 22KPF/25V K 0603	PC	1,0000	C704
1492022300	CAP.SMD X7R 22KPF/25V K 0603	PC	1,0000	C707
1492022300	CAP.SMD X7R 22KPF/25V K 0603	PC	1,0000	C719
1492033200	CAP.SMD X7R 3,3KPF/50V K 0603	PC	1,0000	C605
1492033200	CAP.SMD X7R 3,3KPF/50V K 0603	PC	1,0000	C631
1492047100	CAP.SMD X7R 470PF/50V K 0603	PC	1,0000	C407
1492047100	CAP.SMD X7R 470PF/50V K 0603	PC	1,0000	C907
1492047200	CAP.SMD X7R 4,7KPF/50V K 0603	PC	1,0000	C403
1492047300	CAP.SMD X7R 47KPF/16V K 0603	PC	1,0000	C202
1492047300	CAP.SMD X7R 47KPF/16V K 0603	PC	1,0000	C208
1493022405	CAP.SMD Y5V 220KPF/16V Z 0603	PC	1,0000	C501
1493022405	CAP.SMD Y5V 220KPF/16V Z 0603	PC	1,0000	C730
1494039104	CAP.SMD CH 390PF/50V J 0805	PC	1,0000	C903
1494039104	CAP.SMD CH 390PF/50V J 0805	PC	1,0000	C905
1494182104	CAP.SMD SL 820PF/50V J 0805	PC	1,0000	C602
1502510003	RES.SMD 10R 5% 0603	PC	1,0000	R205
1502510103	RES.SMD 100R 5% 0603	PC	1,0000	R103
1502510103	RES.SMD 100R 5% 0603	PC	1,0000	R104
1502510103	RES.SMD 100R 5% 0603	PC	1,0000	R213
1502510103	RES.SMD 100R 5% 0603	PC	1,0000	R566
1502510203	RES.SMD 1K 5% 0603	PC	1,0000	R201
1502510203	RES.SMD 1K 5% 0603	PC	1,0000	R310
1502510203	RES.SMD 1K 5% 0603	PC	1,0000	R705
1502510203	RES.SMD 1K 5% 0603	PC	1,0000	R775
1502510203	RES.SMD 1K 5% 0603	PC	1,0000	R901
1502510303	RES.SMD 10K 5% 0603	PC	1,0000	R413
1502510303	RES.SMD 10K 5% 0603	PC	1,0000	R420
1502510303	RES.SMD 10K 5% 0603	PC	1,0000	R710
1502510403	RES.SMD 100K 5% 0603	PC	1,0000	R421
1502510403	RES.SMD 100K 5% 0603	PC	1,0000	R602
1502510403	RES.SMD 100K 5% 0603	PC	1,0000	R605
1502512203	RES.SMD 1,2K 5% 0603	PC	1,0000	R206
1502512203	RES.SMD 1,2K 5% 0603	PC	1,0000	R720
1502512203	RES.SMD 1,2K 5% 0603	PC	1,0000	R721
1502512303	RES.SMD 12K 5% 0603	PC	1,0000	R615

1017234100	TV A CORES 20" TVLA 20			
CÓDIGO CCE	**DESCRIÇÃO**	**UND**	**QTDE**	**Ref.Posição**
1502515103	RES.SMD 150R 5% 0603	PC	1,0000	R409
1502518103	RES.SMD 180R 5% (0603)	PC	1,0000	R203
1502518103	RES.SMD 180R 5% (0603)	PC	1,0000	R204
1502518103	RES.SMD 180R 5% (0603)	PC	1,0000	R776
1502518203	RES.SMD 1,8K 5% 0603	PC	1,0000	R614
1502518903	RES.SMD 1,8R 5% 0603	PC	1,0000	R1
1502522003	RES.SMD 22R 5% 0603	PC	1,0000	R906
1502522003	RES.SMD 22R 5% 0603	PC	1,0000	R915
1502522003	RES.SMD 22R 5% 0603	PC	1,0000	R924
1502522103	RES.SMD 220R 5% 0603	PC	1,0000	R777
1502522203	RES.SMD 2,2K 5% 0603	PC	1,0000	R312
1502522203	RES.SMD 2,2K 5% 0603	PC	1,0000	R703
1502522203	RES.SMD 2,2K 5% 0603	PC	1,0000	R704
1502522203	RES.SMD 2,2K 5% 0603	PC	1,0000	R708
1502522203	RES.SMD 2,2K 5% 0603	PC	1,0000	R749
1502522303	RES.SMD 22K 5% 0603	PC	1,0000	R402
1502522303	RES.SMD 22K 5% 0603	PC	1,0000	R403
1502522303	RES.SMD 22K 5% 0603	PC	1,0000	R412
1502522303	RES.SMD 22K 5% 0603	PC	1,0000	R417
1502522303	RES.SMD 22K 5% 0603	PC	1,0000	R707
1502522403	RES.SMD 220K 5% 0603	PC	1,0000	R616
1502527203	RES.SMD 2,7K 5% 0603	PC	1,0000	R407
1502527203	RES.SMD 2,7K 5% 0603	PC	1,0000	R601
1502527203	RES.SMD 2,7K 5% 0603	PC	1,0000	R908
1502527203	RES.SMD 2,7K 5% 0603	PC	1,0000	R917
1502527203	RES.SMD 2,7K 5% 0603	PC	1,0000	R926
1502527303	RES.SMD 27K 5% 0603	PC	1,0000	R418
1502527303	RES.SMD 27K 5% 0603	PC	1,0000	R422
1502533003	RES.SMD 33R 5% 0603	PC	1,0000	R920
1502533003	RES.SMD 33R 5% 0603	PC	1,0000	R929
1502533003	RES.SMD 33R 5% 0603	PC	1,0000	R930
1502533103	RES.SMD 330R 5% 0603	PC	1,0000	R2
1502533103	RES.SMD 330R 5% 0603	PC	1,0000	R311
1502533103	RES.SMD 330R 5% 0603	PC	1,0000	R778
1502533103	RES.SMD 330R 5% 0603	PC	1,0000	R907
1502533103	RES.SMD 330R 5% 0603	PC	1,0000	R916
1502533103	RES.SMD 330R 5% 0603	PC	1,0000	R925
1502533203	RES.SMD 3,3K 5% 0603	PC	1,0000	R714
1502533203	RES.SMD 3,3K 5% 0603	PC	1,0000	R715
1502539103	RES.SMD 390R 5% 0603	PC	1,0000	R105
1502539202	RES.SMD 3,9K 0805	PC	1,0000	R405

1017234100	TV A CORES 20" TVLA 20			
CÓDIGO CCE	**DESCRIÇÃO**	**UND**	**QTDE**	**Ref.Posição**
1502539203	RES.SMD 3,9K 5% 0603	PC	1,0000	R101
1502539203	RES.SMD 3,9K 5% 0603	PC	1,0000	R903
1502539203	RES.SMD 3,9K 5% 0603	PC	1,0000	R912
1502539203	RES.SMD 3,9K 5% 0603	PC	1,0000	R921
1502547103	RES.SMD 470R 5% 0603	PC	1,0000	R779
1502547903	RES.SMD 4,7R 5% 0603	PC	1,0000	R202
1502568003	RES.SMD 68R 5% 0603	PC	1,0000	R250
1502575002	RES.SMD 75R 5% 0805	PC	1,0000	R212
1502575002	RES.SMD 75R 5% 0805	PC	1,0000	R214
1502582103	RES.SMD 820R 5% 0603	PC	1,0000	R406
1502582103	RES.SMD 820R 5% 0603	PC	1,0000	R711
1502582103	RES.SMD 820R 5% 0603	PC	1,0000	R780
1511302800	ALTO FALANTE 40x70mm 3W 8R	PC	1,0000	
1577225404	GABINETE TRASEIRO	PC	1,0000	12(A7)
1577225406	GABINETE SUP.CONTR.REMOTO	PC	1,0000	
1577225408	GABINETE INFERIOR CONTR.REMOTO	PC	1,0000	
1577225409	TAMPA PORTA PILHAS	PC	1,0000	
1577233702	CJT.GABINETE FRONTAL	PC	1,0000	1(H4)
1600007106	PAR.AA.PAN.PH.BEMLI3,0X6 ZNA	PC	2,0000	
1600015112	PAR.AA.P.PH.PP1 4,0X12 ZNA RES	PC	1,0000	
1600015120	PAR.AA.P.PH.PP1 3,0X10 ZNA RES	PC	4,0000	6(4F4)
1600015513	PAR.AA.P.PH.PP1 4,0X15 ZNP RES	PC	4,0000	13(4A11)
1600015520	PAR.AA.P.PH.PP1 3,0X10 ZNP RES	PC	1,0000	15(C11)
1600016120	PAR.AA.P.PH.BEMLI3,0X10ZNA RES	PC	1,0000	
1600059545	PAR.AA.BIND.PH.PP1 2,0X6 ZNP	PC	5,0000	
1631281204	GUIA P/FIOS 04VIAS	PC	1,0000	CN401
1631281204	GUIA P/FIOS 04VIAS	PC	1,0000	CN602
1631281206	GUIA P/FIOS 06VIAS	PC	1,0000	CN501
1631281207	GUIA P/FIOS 07VIAS	PC	1,0000	CN701
1633208360	BASE CONECTORA 2VIAS 180 MIS	PC	1,0000	CN601
1633210804	JACK RCA AM HTJ-032-04B Y	PC	1,0000	JK201
1633210809	JACK RCA BR HTJ-032-04B W	PC	1,0000	JK602
1633211100	CJT.TOMADA 2RCA VERTICAL	PC	1,0000	JK1
1633211202	BASE CONECTORA 2VIAS PITCH 7,5	PC	1,0000	CN801
1633215700	CONECTOR 2,5MM 02V	PC	1,0000	CN601
1637615640	GARRA P/FUSIVEL	PC	1,0000	PF801
1637615640	GARRA P/FUSIVEL	PC	1,0000	PF802
1638101012	SOQUETE P/CINESCOPIO 1SHM12S	PC	1,0000	SQ901
1641000167	CABO MON.1VC/TER.18AWG MR 320	PC	1,0000	W2
1644509500	CABO DE FORCA 2x0,75x2000mm PP	PC	1,0000	CF801
1647655100	CJT.CHICOTE 2V. C/HOUSE MIS	PC	1,0000	CN601

1017234100	TV A CORES 20" TVLA 20			
CÓDIGO CCE	**DESCRIÇÃO**	**UND**	**QTDE**	**Ref.Posição**
1647658600	CABO CONEX.MONT.LIG.YOKE 440MM	PC	1,0000	
1647668500	CABO MONT.C/TERM.1V 18AWG210MM	PC	1,0000	W1
1647670100	CABO FRAY 4V 3ELEM 330MM	PC	1,0000	CN401
1657215410	DISSIPADOR R-G-B	PC	2,0000	
1657225401	DISSIPADOR FONTE	PC	1,0000	
1657225402	DISSIPADOR SAIDA VT	PC	1,0000	
1677225402	EMBLEMA CCE	PC	1,0000	2(G1)
1682021400	MOLA DE ATERRAMENTO DO CRT	PC	1,0000	
1687218501	MOLA DE CONTATO PILHA NEG	PC	1,0000	
1687218502	MOLA DE CONTATO PILHA POS	PC	1,0000	
1687218503	MOLA CONTATO PILHA POS/NEG	PC	1,0000	
1697225401	CHASSI	PC	1,0000	8(F7)
1700100003	TRANSISTOR SMD BC847B	PC	1,0000	Q201
1700100003	TRANSISTOR SMD BC847B	PC	1,0000	Q301
1700100003	TRANSISTOR SMD BC847B	PC	1,0000	Q404
1700100003	TRANSISTOR SMD BC847B	PC	1,0000	Q701
1700100003	TRANSISTOR SMD BC847B	PC	1,0000	Q703
1700100011	TRANSISTOR SMD BC856BLT1	PC	1,0000	Q403
1700100014	TRANSISTOR SMD BC817/25	PC	1,0000	TR1
1710100081	I.C. SMD BR24C08/F	PC	1,0000	IC701
1710100137	I.C.SMD PT1140/PT0249	PC	1,0000	IC1
1710100160	I.C. TDA9570H/N1	PC	1,0000	IC101
1727225401	PRESILHA	PC	2,0000	
1738002300	MALHA DE ATERRAMENTO	PC	1,0000	
1760206100	FIXADOR DE FIOS 274mm	PC	4,0000	
1761602600	FIXADOR DE FIOS 101mm	PC	2,0000	
1769900003	SACO PLASTICO 25X40X0,05MM A.D	PC	1,0000	
1769900021	SACO PLASTICO 100X97X0.05MM AD	PC	1,0000	
1769900064	SACO PLASTICO 90X280X0,04B.D.	PC	1,0000	
1771079900	SUPORTE P/BOBINA	PC	2,0000	
1771082910	CALCO P/CINESCOPIO	PC	4,0000	
1777205902	ESPACADOR	PC	1,0000	
1777217803	CALCO DE BORRACHA	PC	2,0000	
1777225404	TECLADO DE BORRACHA ILUMINADO	PC	1,0000	
1850473302	FILME POLIET.B.D.E=0,06XL=800	KG	0,0970	
1874500200	ALCOOL ISOPROPILICO	L	0,0001	
1876301200	COLA CASCOLA	KG	0,0010	
1876316700	ADESIVO 30ML	L	0,0000	
1880500900	SOLDA TRIFLUXO 60X40X1,5MM	KG	0,0032	
1886000100	PILHA PEQUENA AA 1.5V	PC	2,0000	
1889300500	FITA DUREX L= 12,0MM	M	0,0500	

1017234100	TV A CORES 20" TVLA 20			
CÓDIGO CCE	**DESCRIÇÃO**	**UND**	**QTDE**	**Ref.Posição**
1889323000	FITA A.PP.BASE BORR.SINTET.MR	M	0,0800	
1889401800	FITA A.ADES.S/LOG L=38X100MT	M	0,8000	



ULTIMO NUMERO: 17(E10)
NUMERO VAGO: 4/5/3

POS.	PARAF.
6	PAR. PP1 3x10 ZNA RES.
7	PAR. SEXT.PP2 5x30 ZNA AR. DENT.
13	PAR. PP1 4x15 ZNP RES.
15	PAR. PP1 3x10 ZNP RES.
16	PAR. BEMLI 3x6 ZNA

ALT.	P.A.	DESCRICAO/DESCRIPTION	PROJ. CHKD	DATA DATE
		TITULO / TITLES: VISTA EXPLODIDA / EXPLODED VIEW	PROJ.	DIMENSOES EM mm / DIMENSIONS (mm)

	NOME NAME	DATA DATE	MATERIAL MATERIAL
DES. DWG.	EDVALDO	04.07.2002	ACAB. FINISH
PROJ. CHKD.	EDVALDO	04.07.2002	ESC. SCALE S/E — TOL. Ø — TOL. ±0,2 — ACAD: — FORMATO: A1
APROV. APPD.	ODAIR	04.07.2002	MOD. MODEL HPS-2007 — COD. CODE

CONTROLE REMOTO RC-38 - 1027225190

IC101
QFP80
TDA9570H

IC601
TDA1013B

IC301
TDA9309

IC801
UC3842B

IC802
TL431-RA

IC804
7805

IC701
BR24C08/F

T801

T402

T401
1353002400

FIO501

SQ901
148EAK01X84

V901

JK1
AUDIO
VIDEO
REAR

JK201
VIDEO
FRONT

JK602
AUDIO

OPÇÃO
EXPORTAÇÃO

- ITEM DE SEGURANCA - ESTES COMPONENTES SO PODEM SER SUBSTITUIDOS POR ORIGINAIS DE FABRICA

ALT.	P.A.	DISCRIMINAÇÃO		VISTO	DATA
ZONDA		TÍTULO: SCHEMATIC DIAGRAM		PROJECAO	
				dimensões em mm	
	NOME	DATA	MAT.		
DES.			ACAB.		
PROJ.			ESC.	TOL.Ø	TOL.
APRO.			MOD. TVLA20		COD.

Nº A1