



Quality control and process management systems

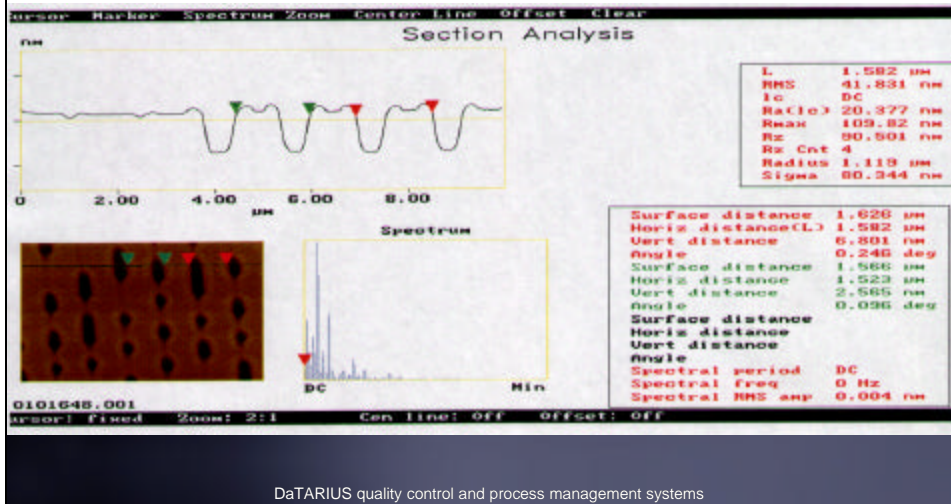


## Reasons for HF & analogue failures...

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**kdg mediatech AG**

(1) XT/TRP:

Example #1 - small TRP caused by long Atime(78:45:00)



messung Anzeige Archiv Spieler Bericht Autotest Spezial Konfiguration Beenden Hilfe

**Ac** DIG TBE Titel:  
78450000 / 1 ANA SC Spielzeit: 78:45.00 #Tracks: 24  
old HF OPT Matrize: 839.587.A  
MEC SVS Maschine:

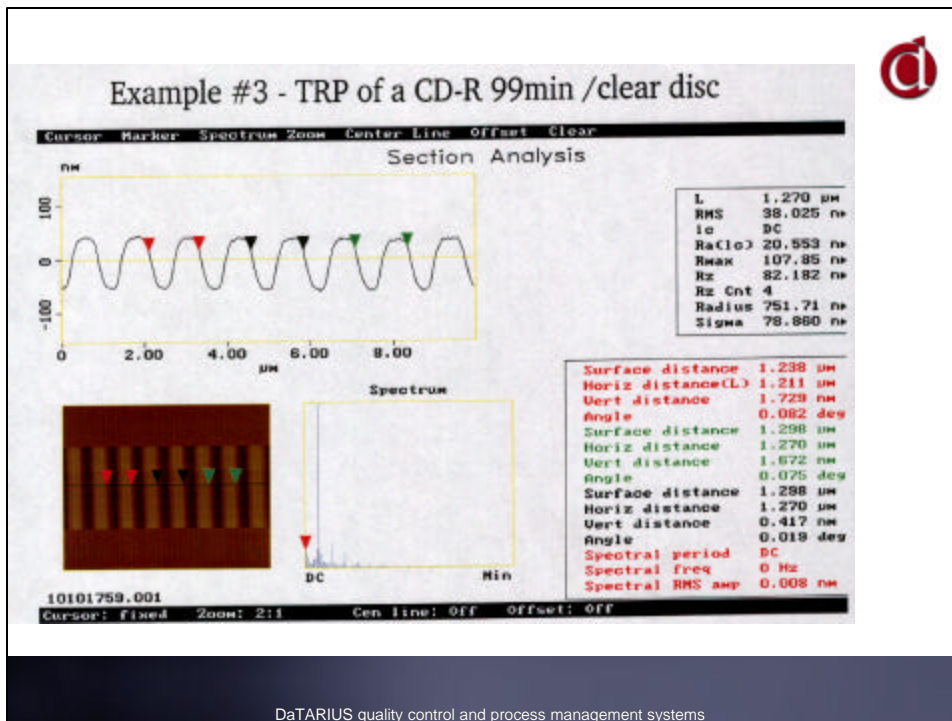
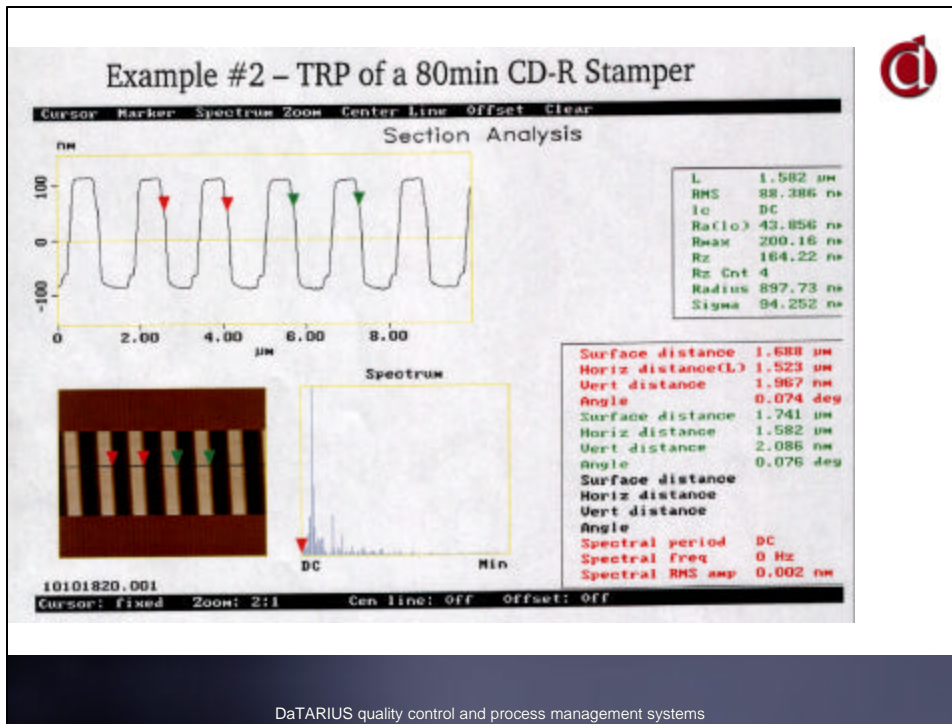
RAD	Min	Max	Avg	24.9	29.6	34.3	39.8	43.7	48.4	53.1	57.7
XT		.44	.44	.47	.42	.44	.39	.40	.44	.45	.48
PPC	.040	.090	.052	.047	.050	.050	.052	.053	.054	.055	.054
I1T	.60		.71	.76	.72	.71	.70	.70	.71	.71	.69
I3T	.30	.70	.34	.34	.34	.33	.33	.33	.33	.34	.34
ASY	-15.0	+5.0	-2.2	-3.4	-2.2	-2.0	-1.8	-2.4	-2.2	-2.4	-3.1

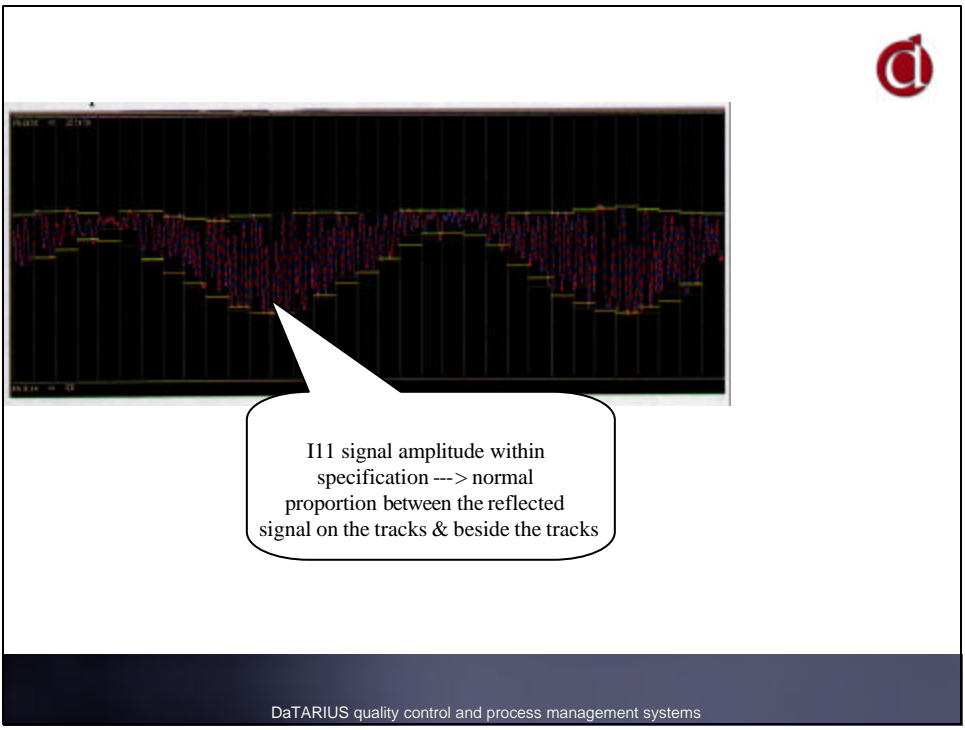
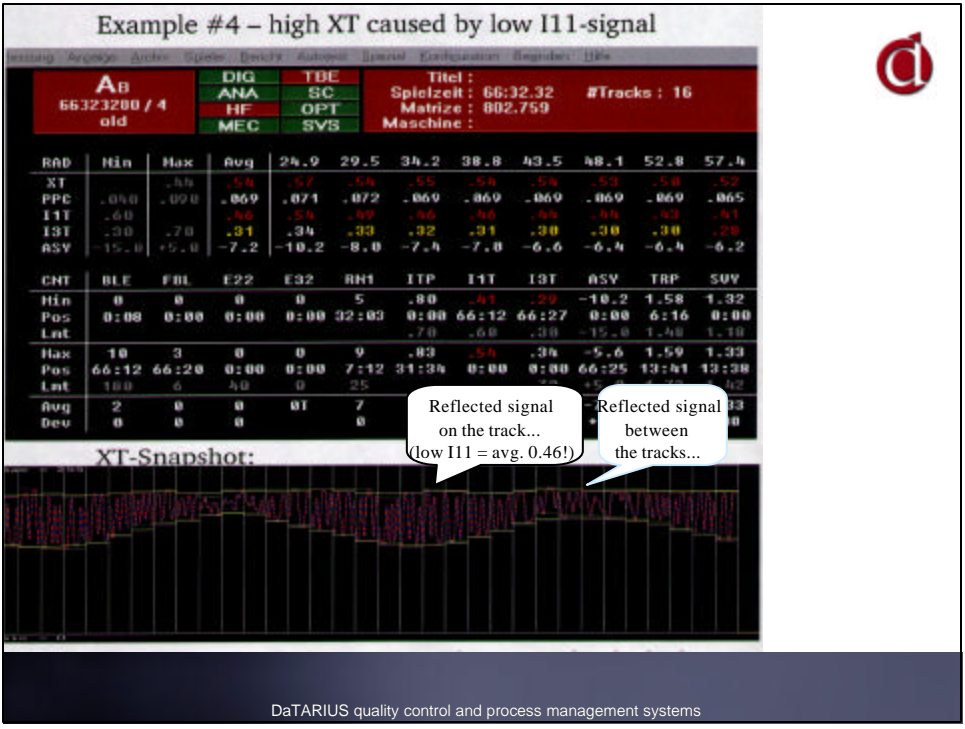
  

CNT	BLE	FBL	E22	E32	RN1	I1T	I1T	I3T	ASY	TRP	SUV
Min	2	0	0	0	6	.76	.69	.33	-3.4	1.49	1.2
Pos	7:34	0:00	0:00	0:00	16:13	0:00	37:50	16:10	0:00	51:47	32:5
Int						.70	.60	.30	-15.0	1.40	1.1
Max	30	5	2	0	12	.79	.77	.36	-1.4	1.51	1.2
Pos	66:02	30:05	30:05	0:00	76:14	26:22	0:17	0:17	24:04	77:05	0:3
Int	100	6	40	0	25			.70	+5.0	1.70	1.4
Avg	10	0	0	0T	7	.78	.71	.34	-2.2	1.50	1.2
Dev	2	0	0	0	0	.00	.01	.00	+2	.00	.00

< TRP  
> Atime  
=increasing  
XT-value

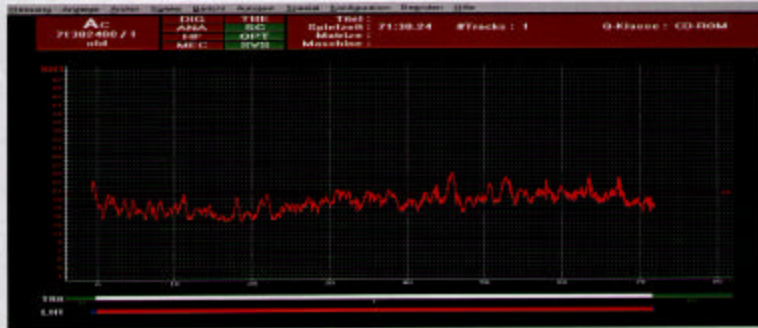
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(II) Radial Noise:  
Example #1 – Galvanic effect „Orange skin“



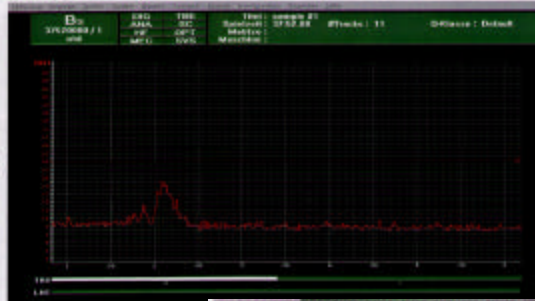
- reasons : - wrong voltage settings during electrolysis in the galvanic bath (causes stress in the nickel material)
- too long passivating process (wavy surface)

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Example #2 – „RN effect – pick up influence“



1-spot  
player)



measured with a  
CDCS4 - 4.2/L player  
(calibrated)

measured with a  
CDCS4 - 4.2/L3 player  
(uncalibrated)

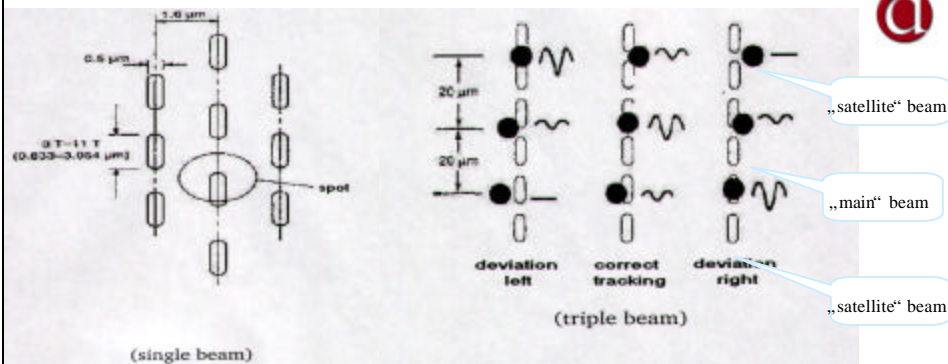


(3-spot  
player)

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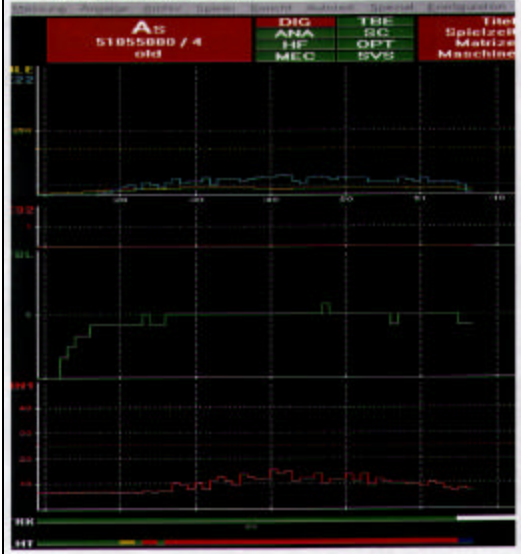
Difference between 1-spot and 3-spot pick-up head (can cause different RN-signal):




- generell:
- european designed systems uses a pick up which has a limit head movement (2tracks)
  - japanese designed systems allow the pick up to move as far as needed

key point: When the Red book was realised, there were no specifications for the measuring systems and the kind of pick up they use. ----> different pick up's causes different way of reading out the information, and different results in the measurement reports.

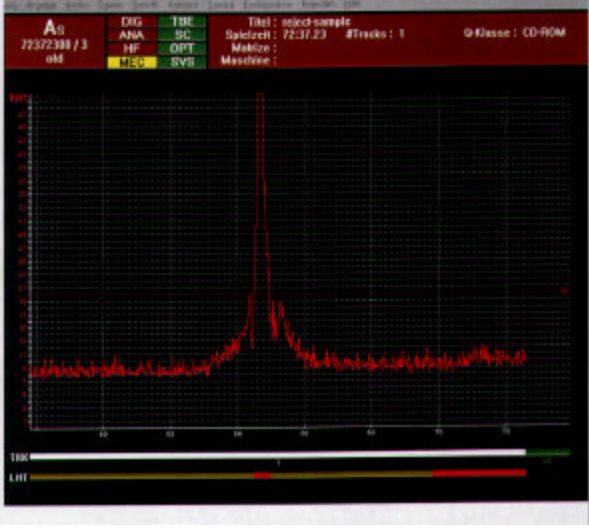
Example #3 (oil dot)



This example shows the reflection -influence of an oil dot which would be normally rejected by the scanner of the production line.



**Example #4 – Inclusion (near above Pit structure)**




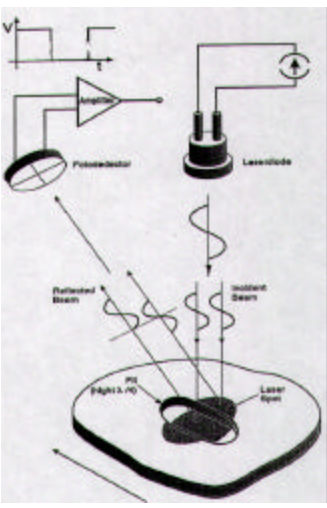
This effect is based on a inclusion in the polycarbonate - layer.

The inclusion does not destroy the information layer but it 's still near above the pit structure and hands influences the optic when focusing and keeping track.

Both effect will be shown in a short video.

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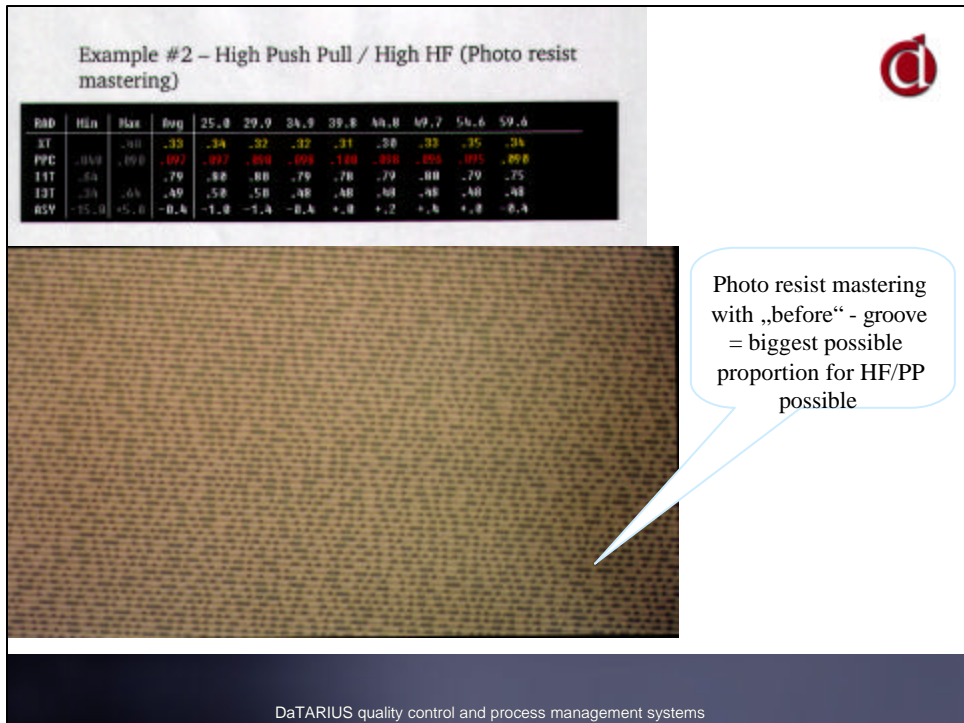
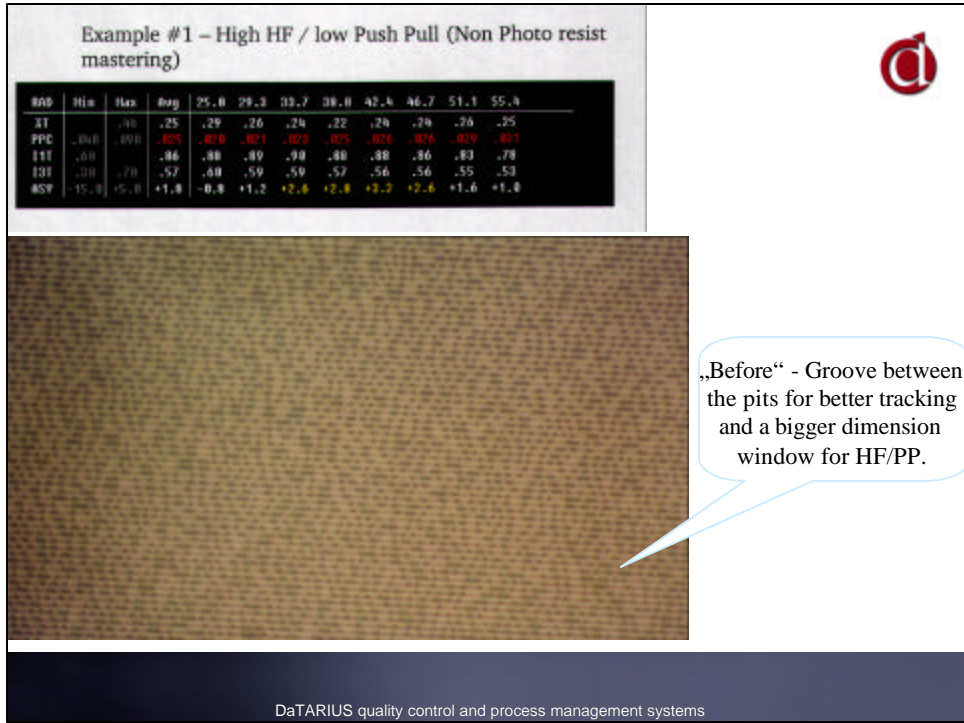


The proportion of the HF and PP values to each other finally depends on the pit-depth.

If we would have the case like on the picture , the difference for the photodector would be clearly caused by the disappearing of the amplitude.

On the following examples we can see the influences of the different ways of mastering.

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Example #3 – High Push Pull / low I11 (Non Photo resist mastering)



RD#	Min	Max	Avg	2A.0	29.5	3A.1	3B.0	32.6	36.0	52.2	57.3
ZT		.95	.95	.95	.95	.95	.95	.95	.95	.95	.95
PPC	.00	.00	.000	.071	.070	.060	.050	.050	.050	.467	.065
I11	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
I01	.00	.70	.35	.36	.36	.35	.35	.35	.35	.35	.33
BSY	-.35.0	+.5.0	-.7.0	-10.0	-8.0	-7.0	-6.0	-6.0	-6.2	-5.0	-5.0



Non photo resist mastering without a „before“ - groove = lower dimension between HF/PP.



Thank you for your attention...