

D := umkehren(D)

D := READBMP(audio74k_2231 bmp) D := READBMP(audio74k_1638 bmp) D := READBMP(audio74k_0809 bmp) D := READBMP(audio74k_1646a bmp) D := READBMP(audio74k_1752 bmp)

$n_{xm} := \frac{\text{spalten}(D)}{4}$ $n_x := 0..n_{xm} - 1$ $n_{ym} := \text{zeilen}(D)$ $n_{ym} = 103710$

$D1_{\text{zeilen}(D)-1, n_{xm}-1} := 0$ $D1^{<n_x>} := D^{<4-n_x>} + 256 \cdot D^{<4-n_x+1>} + j \cdot (D^{<4-n_x+2>} + 256 \cdot D^{<4-n_x+3>})$ $D1 := \overline{(D1 + ((\text{Re}(D1) \geq 32768) \cdot -65536 + (\text{Im}(D1) \geq 32768) \cdot -65536j))}$ $D1 := \overline{D1}$

$n_{ym} := \frac{256}{1}$ $n_{nym} := \text{floor}\left(\frac{\text{zeilen}(D)}{n_{ym}}\right) \cdot 2 - n_{nym} := 0..n_{nym} - 1$ $n_y := 0..n_{ym} - 1$ $y0(n_{nym}) := \frac{n_{ym}}{2} \cdot n_{nym}$ $n_{nym} = 809$ $sr := \frac{12000.86}{768}$

$n_{x2m} := \frac{n_{xm}}{2}$ $n_{x2} := 0..n_{x2m} - 1$ $n_m := \frac{n_{xm} \cdot n_{ym}}{2}$ $n_m = 2048$

$DLL_{n_m-1, n_{nym}-1} := 0$ $DLL_{n_{x2}+n_y \cdot n_{x2m}, n_{nym}} := D1_{n_y+y0(n_{nym}), n_{x2} \cdot 2}$ $DRR_{n_m-1, n_{nym}-1} := 0$ $DRR_{n_{x2}+n_y \cdot n_{x2m}, n_{nym}} := D1_{n_y+y0(n_{nym}), n_{x2} \cdot 2 + 1}$

$DL := DLL^{<2>}$ $DR := DRR^{<2>}$ $n := 0..n_m - 1$ $nd := 0..n_m - 1$ $n_m = 2048$ $\frac{n_m}{sr} = 131.06261$

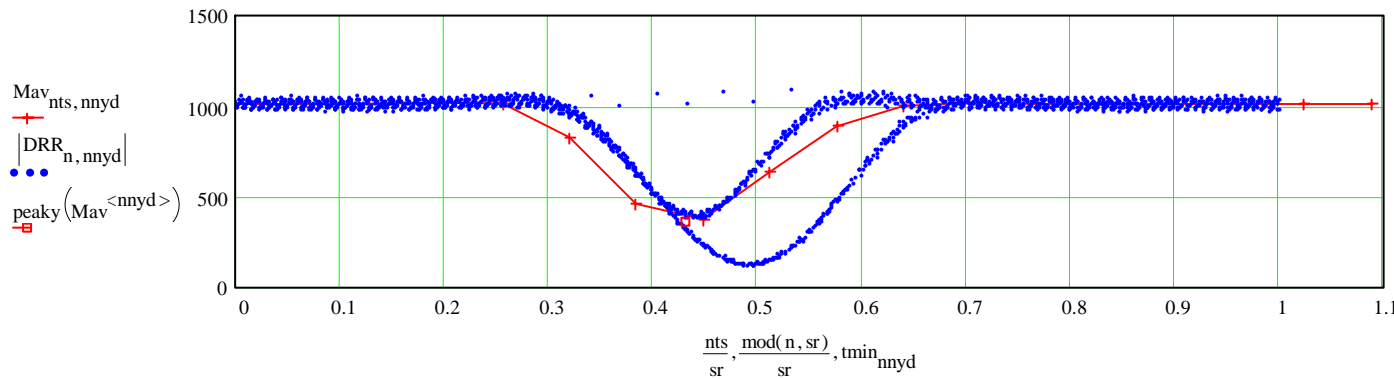
$Mav_{\text{floor}(sr), n_{nym}-1} := 0$ $Mav_{\text{floor}(\text{mod}(n, sr)), n_{nym}} := Mav_{\text{floor}(\text{mod}(n, sr)), n_{nym}} + |DRR_{n, n_{nym}}|$ $count_{\text{floor}(sr), n_{nym}-1} := 0$ $count_{\text{floor}(\text{mod}(n, sr)), n_{nym}} := count_{\text{floor}(\text{mod}(n, sr)), n_{nym}} + 1$

$Mav := \frac{Mav}{count}$ $Mav_{\text{floor}(sr+1), n_{nym}} := Mav_{0, n_{nym}}$ $Mav_{\text{floor}(sr+2), n_{nym}} := Mav_{1, n_{nym}}$ $nts := 0.. \text{floor}(sr) + 2$

$imcnt_{nts} := j \cdot nts$ $imcnt_0 := imcnt_{\text{floor}(sr+1)}$ $imcnt_{\text{floor}(sr+2)} := imcnt_1$ $peaknf(y) := \text{Im}(\text{sort}(y + imcnt_0))$ **remove minima from edges**

$peakprecx(y, np) := np + \frac{1}{2} \cdot \frac{y_{np-1} - y_{np+1}}{y_{np-1} - 2 \cdot y_{np} + y_{np+1}}$ $peakprecy(y, np) := y_{np} - \frac{1}{8} \cdot \frac{(y_{np-1} - y_{np+1})^2}{y_{np-1} - 2 \cdot y_{np} + y_{np+1}}$ $peakx(y) := peakprecx(y, peaknf(y))$ $peaky(y) := peakprecy(y, peaknf(y))$ $xp = (y1-y3) / (y1-2y2+y3) / 2$ $yp = y2 - (y1-y3) * xp / 4$

$tmin_{nny} := \frac{peakx(Mav^{<nny>})}{sr}$ $toffs := tmin + .06$ $toffs := toffs - \text{floor}(toffs)$ $nnyd := 2$



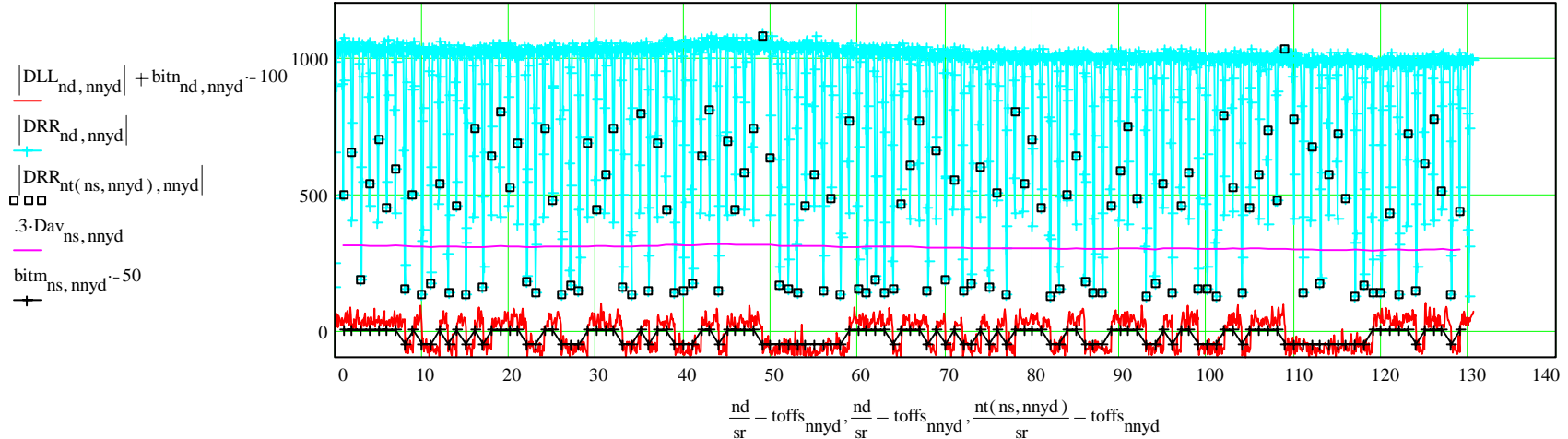
	0	0
tmin =	0	0.48932
	1	0.97111
	2	0.43122
	3	0.90178
	4	0.3662
	5	0.83428
	6	0.30406
	7	0.77112
	8	0.24436
toffs =	0	0.54932
	1	0.03111
	2	0.49122
	3	0.96178
	4	0.4262
	5	0.89428
	6	0.36406
	7	0.83112
	8	0.30436

$$ns := 1 \dots \frac{nm}{sr} - 2 \quad nt(ns, nny) := \text{floor} \left[\left(ns + \text{toffs}_{nny} \right) \cdot sr + \frac{\xi}{\text{Dav}_{ns, nny}} \right] \quad \text{Dav}_{ns, nny} := \frac{|\text{DRR}_{nt(ns-.5, nny), nny}| + |\text{DRR}_{nt(ns+.5, nny), nny}|}{2} \quad \text{bit}_{ns, nny} := |\text{DRR}_{nt(ns, nny), nny}| < .3 \cdot \text{Dav}_{ns, nny}$$

$$\text{bitmin}_{nny} := -1 \quad \text{bitmin}_{nny} := \text{wenn} \left(|\text{DRR}_{nt(ns, nny), nny}| > .9 \cdot \text{Dav}_{ns, nny}, ns, \text{bitmin}_{nny} \right) \quad \text{bit}_{ns, nny} := \text{wenn} \left[\text{mod} \left[\left(ns - \text{bitmin}_{nny} \right) + 600, 60 \right] < 10, 1, \text{wenn} \left[\text{mod} \left[\left(ns - \text{bitmin}_{nny} \right) + 600, 60 \right] < 15, 0, \text{bit}_{ns, nny} \right] \right]$$

$$\text{bitm}_{\text{floor} \left(\frac{nm}{sr} + 1 \right), nny} := 0 \quad \text{bit}_{n, nny} := \left(n > sr \cdot \text{toffs}_{nny} \right) \cdot \text{bitm}_{\text{floor} \left(\frac{n}{sr} - \text{toffs}_{nny} \right), nny}$$

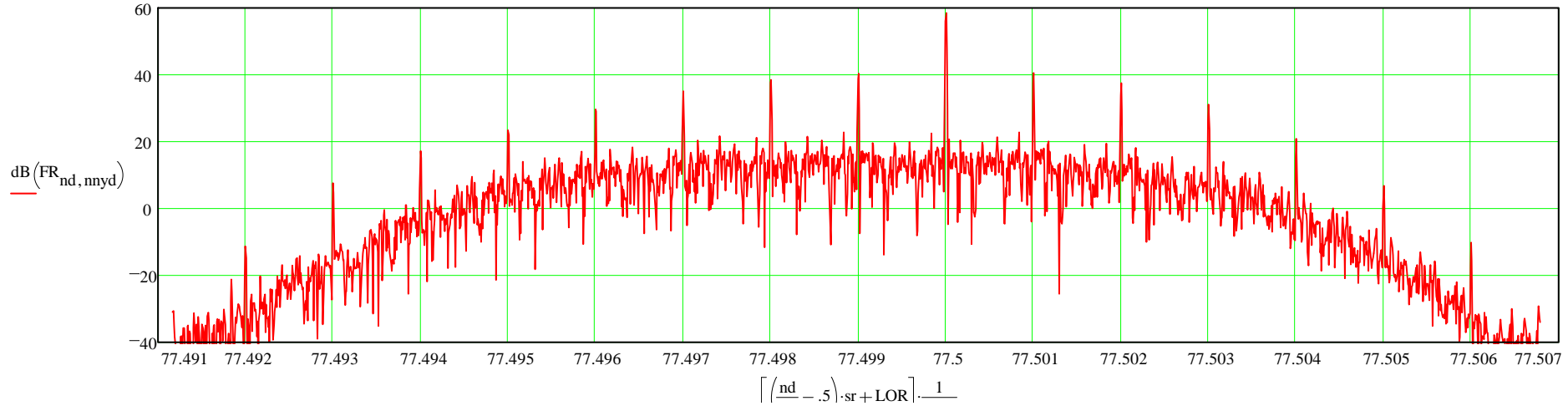
0	0
1	0
2	0
3	0
4	0
5	0
6	0
7	0
8	1
9	0
10	1
11	1



bitm<nnyd> =

$$\text{shift}_n := (-1)^n \quad \text{shifw}_n := (-1)^n \cdot \sin \left(\pi \cdot \frac{n}{nm} \right)^2 \cdot 2 \quad \text{FR}_{nm-1, nny-1} := 0 \quad \text{FR}_{<nny>} := \text{CSFT} \left(\overrightarrow{\left(\overrightarrow{\text{DRR}_{<nny>} \cdot \text{shifw}_n \right)} \right) \quad \text{FL}_{nm-1, nny-1} := 0 \quad \text{FL}_{<nny>} := \text{CSFT} \left(\overrightarrow{\left(\overrightarrow{\text{DLL}_{<nny>} \cdot \text{shifw}_n \right)} \right)$$

$$\text{dB}(x) := \text{wenn}(|x| > .00001, 20 \cdot \log(|x|), -100) \quad nd := 0 \dots nm - 1 \quad \text{LOR} := 77500 - 1.02 \quad \text{LO} := 72000.26$$



$$DLc := \overline{(DLL \cdot (2 \cdot \text{bitn} - 1))}$$

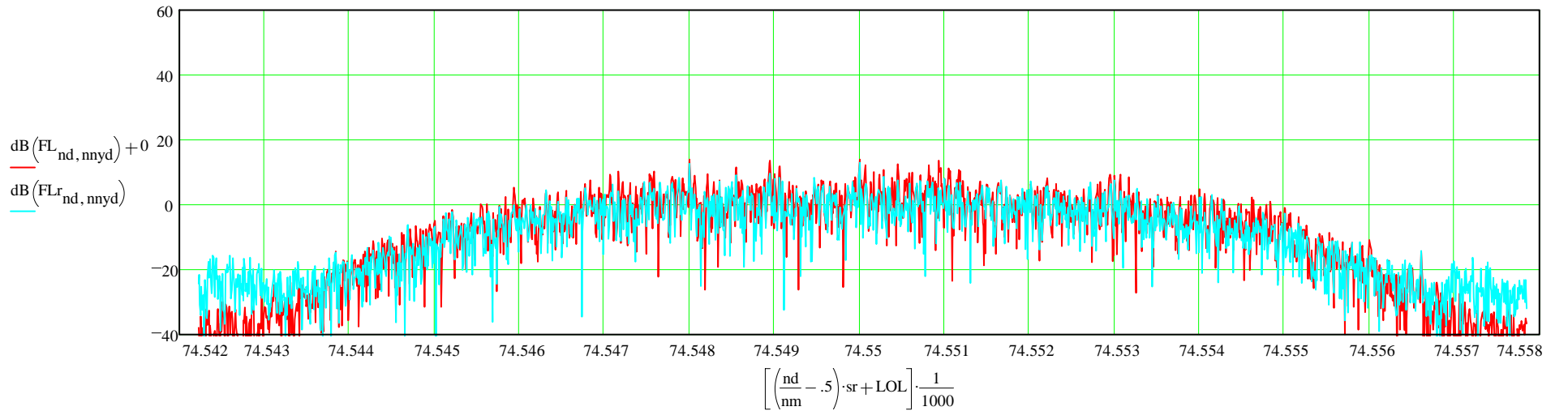
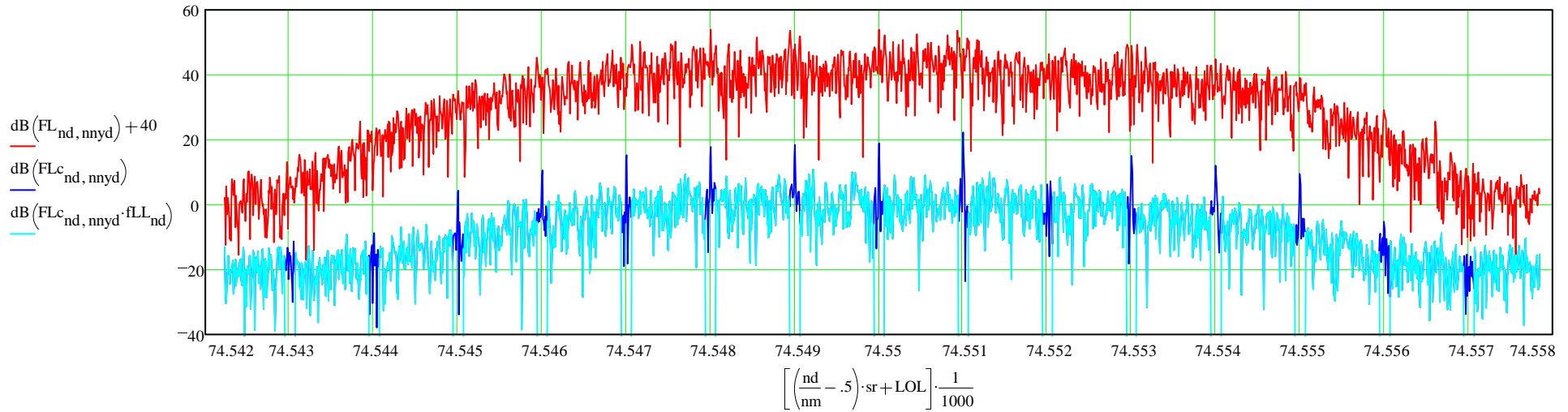
$$FLc_{nm-1, nny-1} := 0$$

$$FLc^{<nny>} := \text{CSFT} \left(\overline{(DLc^{<nny>} \cdot \text{shiftw})} \right)$$

$$LOL := 72000.26 + \frac{12000.86}{12000} \cdot 2550$$

$$LOL = 74550.44275 \quad LOL := 74550 + .039$$

$$fL_n := \left(\frac{n}{nm} - .5 \right) \cdot sr + LOL \quad fLL_n := |fL_n - \text{floor}(fL_n + .5)| > .06 \quad FLr_{nm-1, nny-1} := 0 \quad FLr^{<nny>} := \text{CSFT} \left(\overline{\left[\text{ICSFT} \left(\overline{(FLc^{<nny>} \cdot fLL)} \right) \cdot (2 \cdot \text{bitn}^{<nny>} - 1) \right]} \right)$$



$$\text{lim}(x) := (x > 0) \cdot (x < 1) \cdot x + (x \geq 1)$$

$$\text{sp}_{\text{nm}-1, \text{nny m}-1} := 0 \quad \text{sp} := \left(\overrightarrow{255 \cdot \text{lim} \left(\frac{\text{dB}(\text{FL}) + 0}{20} \right)} \right) \quad \text{WRITEBMP}(\text{sp_bmp}) := \text{umkehren}(\text{sp}) \quad \text{spr}_{\text{nm}-1, \text{nny m}-1} := 0 \quad \text{spr} := \left(\overrightarrow{255 \cdot \text{lim} \left(\frac{\text{dB}(\text{FLr}) + 0}{20} \right)} \right) \quad \text{WRITEBMP}(\text{spr_bmp}) := \text{umkehren}(\text{spr})$$

