

- Slide 8-7: The frequency bands tables are added.
- Slide 8-24: The unit of the Boltzmann constant, i.e., Joule/Kelvin, is added.
- Slide 8-25: “ $N_{input,RMS} = 4kTR_s\Delta f$ ” should be replaced by “ $N_{input,RMS} = 4kT\Delta f$ ”.
- Slide 8-27: “Haa” should be “Hall”. “thermal noise power” is replaced by “thermal noise voltage level”. “noise powers” is replaced by “noise voltage and current level”.
- Slide 8-37: I add one sentence, “Below are all equivalent noise temperatures.”
- Slide 8-40: The equation about units is added, i.e.,

$(\text{dBW})+(\text{dB/K})-(\text{dBW/K-Hz})+\text{dB}=\text{dB-Hz}$
- Slide 8-42: The equation about units is added, i.e.,

$\text{dB-Hz}-(\text{dB/bits})-\text{dB}=\text{bits/second}$
- Slide 8-49: The mark “ $L + \Delta L$ ” is added. Also added is a small box below, indicating

$$\begin{aligned} \mathcal{F}ourier\{g(t - a)\} &= G(f)e^{-j2\pi fa} \\ e^{j\Delta\phi} &= e^{-j2\pi\Delta f\cdot\Delta t} \end{aligned}$$
- Slide 8-50: The mark “ $L + \Delta L$ ” is added.
- Slide 8-53: Two superfluous “)” in $S(f)$ and $\tilde{S}(f)$ are removed.
- Slide 8-54: In the second line of derivation $\tilde{S}(f)\tilde{H}(f)$, $f + f + c$ should be $f + f_c$. Also, “ $2S_o(f + f_c)$ ” should be replaced by “ $2[2u(f + f_c)S_o(f + f_c)]$ ”.
- Slide 8-55: “Given for” should be “For”. Three superfluous “)” in $S_o(f)$, $\tilde{H}(f;t)$ and $\tilde{S}_o(f)$ are removed.
- Slide 8-56 and 8-57: The two slides are re-phrased to make them consistent with the previous derivations on slide 8-54.

- Slide 8-59: Add “ $\Delta f = f_2 - f_1$ ”. Replace

$$= \int_{-\infty}^{\infty} r_{\tilde{h}}(\tau_1; \Delta t) e^{j2\pi(\Delta f)\tau_1} d\tau_1 = r_{\tilde{H}}(\Delta f; \Delta t)$$

at the bottom line of the displayed equation by

$$= \int_{-\infty}^{\infty} r_{\tilde{h}}(\tau_1; \Delta t) e^{-j2\pi(\Delta f)\tau_1} d\tau_1 = r_{\tilde{H}}(\Delta f; \Delta t).$$

- Slide 8-60: “multiplath” is a typo, and should be corrected as “multipath”. The definition of delay power spectrum, i.e., $P_{\tilde{h}}(\tau) = r_{\tilde{h}}(\tau; \Delta t = 0)$, is added.

- Slide 8-70: “degraded” is replaced by “degrades”.

- Slide 8-74: It should be “where $\alpha^2 = \sum_{\ell=1}^L \alpha_{\ell}^2, \dots$ ”.

- Slide 8-78: Number of duplex channels should be 125. “... for other ...” should be “... or some other ...”.

- Slide 8-82 and 8-84: Bandlimitedness should be “... = 0 for $|f| > W/2$ ”.

- Slide 8-86: The notations marked in the figure have been corrected so that they are consistent with the derivation.

- Slide 8-98: “project” should be ”projection”.

- Slide 8-99:

$$\arg \max_{\mathbf{w} \in \mathcal{W}} \frac{E[(\mathbf{w} \cdot \mathbf{c}_1 m_1)^2]}{E[(\mathbf{w} \cdot \mathbf{v})^2]}$$

should be

$$\arg \max_{\mathbf{w} \in \mathcal{W}} \frac{E[(\mathbf{w} \cdot \mathbf{c}_1 m_1)^2]}{E[(\mathbf{w} \cdot \mathbf{v})^2]}.$$