Integrability in m.s.s.

1. Riemann ~~integral~~ $\int_a^b X(u,t)\,dt$ exists in m.s.s. ,
   if $\iint_{-\infty}^{+\infty} R_X(t,t')\,dt\,dt' < \infty$.

2. If $X(u,t)$ is uniformly continuous in m.s.s. on a finite interval,
   then $\int_I X(u,t)\,dt$ exist in m.s.s.

3. The Fourier integral $\int_{-\infty}^{+\infty} X(u,t)\, e^{-i2\pi f t}\,dt$ doesn't exist in m.s.s. in general, when $X(u,t)$ is w.s.s.

4. $X(u,t)$ w.s.s. , LTI operator stable, then the output exists in m.s.s.