QUESTIONS: LÉVY-KHINTCHINE FORMULA

(1) Page 17: Remark 2. Give a formal argument that
$$t \mapsto \int_{\mathbb{R}^d} (\exp(i\langle t, x\rangle) - 1 - i\langle t, x\rangle I_D(x))\nu(dx) \text{ is continuous}$$
(2) Page 17: Remark 5: Why can we re-write the formula as claimed?
(3) What can you say over an infinitely divisible distribution if the Lévy measure ν is finite?
(4) Page 18, line 6: Give a formal argument that the limit is indeed $-\langle t, At\rangle/2$.
(5) Page 20, line 3: why can we apply the dominated convergence theorem?
(6) Page 22, line -4: Show (without calculating the integral) that $\int_{[-h,h]^d} \psi_n(t)dt \in \mathbb{R}$.
(7) Page 23, line 1: Why can we apply Fubini's theorem?
(8) Page 23, line 15: Is this easy to see?
(9) Page 23, line -4: why does h_ϵ exist?
(10) Formula (2.12). Check why we had to insert the extra term $\langle t, x\rangle^2/2$. (See also definition of $I_{n,\epsilon}(t)$.)
(11) Page 25, line -9: Why do we have $I_\epsilon(t) \to 0$?
(12) Page 26, line -1: Prove that $\int_A f d\nu_n \to \int_A f d\nu$ if $\nu(\partial A) = 0$.
(13) Page 27, lines 6+7: Why is this the case?
(14) Page 27, formula (2.15). Try to prove this formally. Hint: see questions 2 and 3.