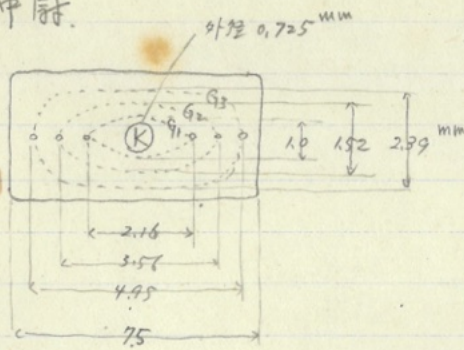


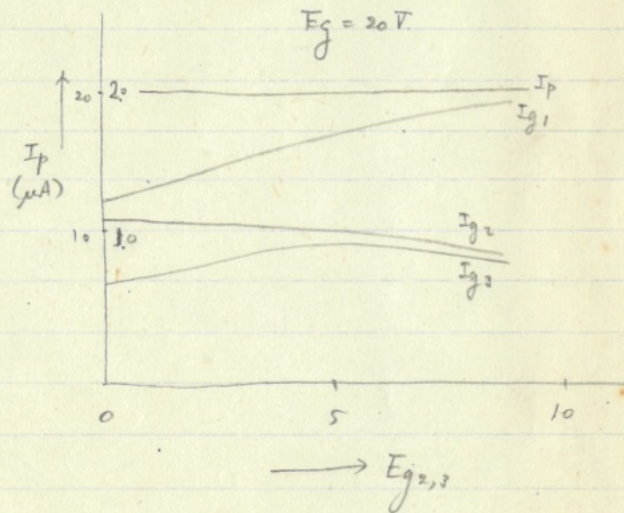
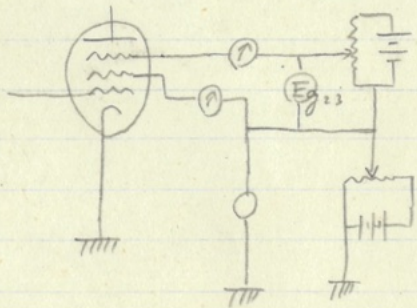
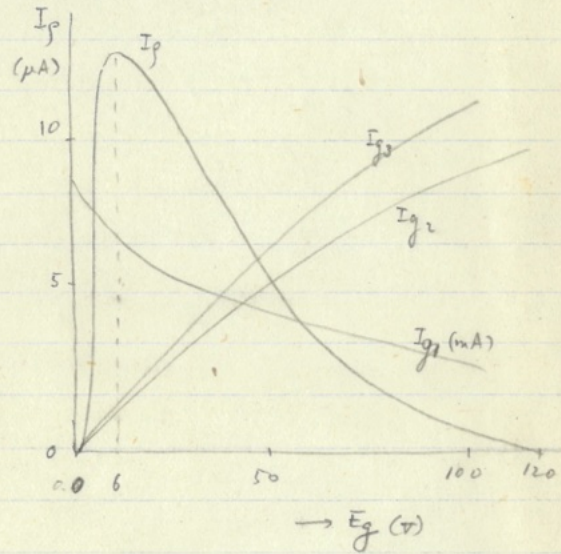
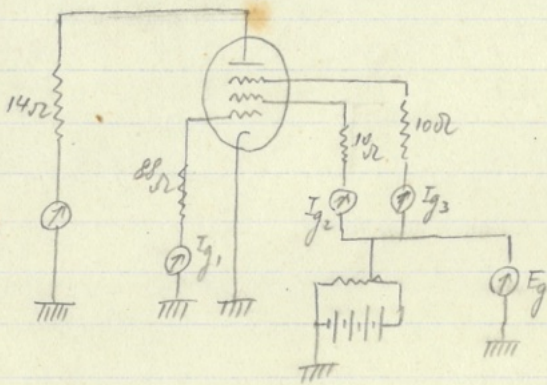
佐々木中尉

V-954

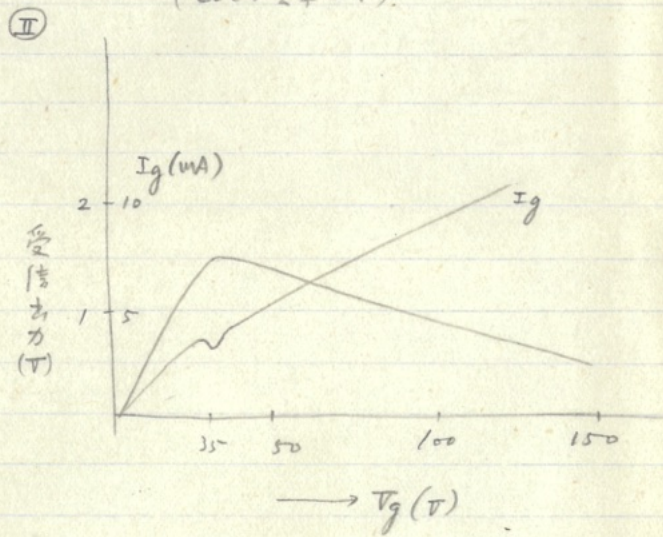
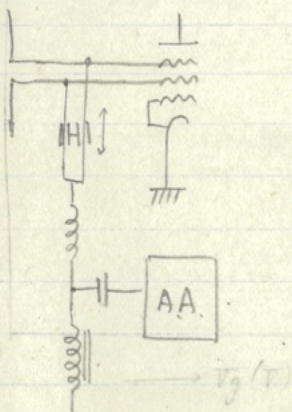
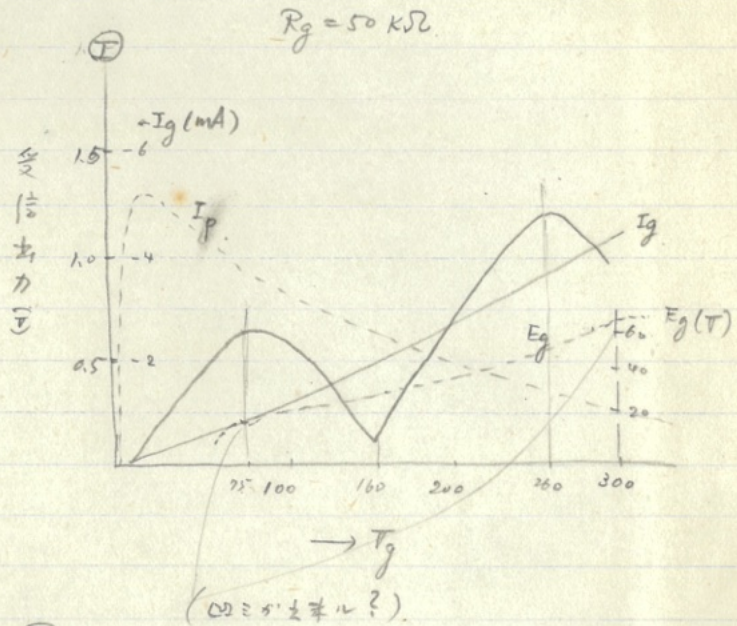
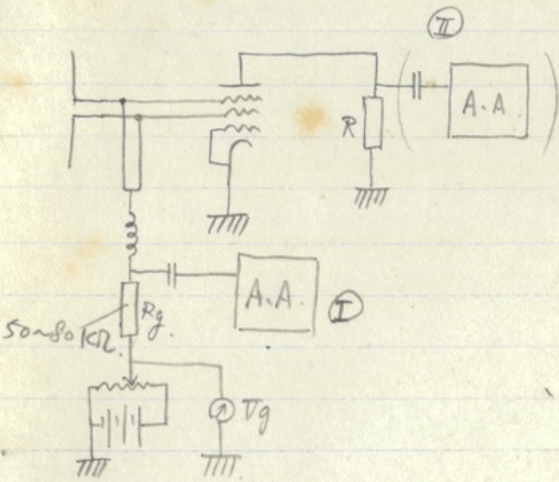


	ϕ	巻数/寸
G ₁	0.03 mm	190
G ₂	0.03	200
G ₃	0.05	48

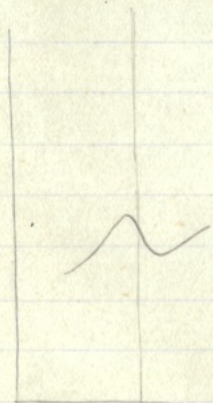
static charac.



直接検波

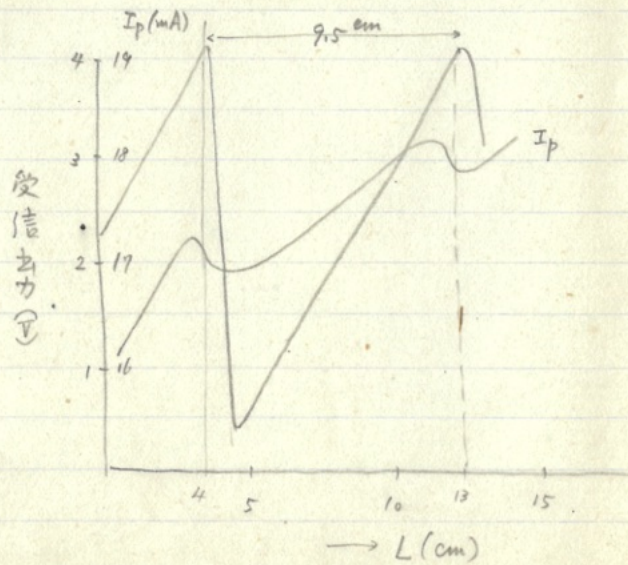


short-bar

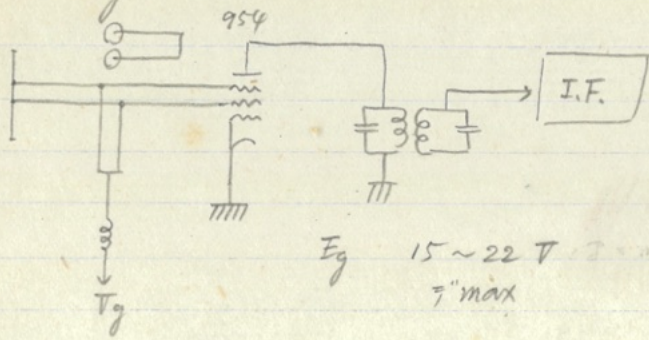


carrier + E.

送信機 \Rightarrow 受信機?

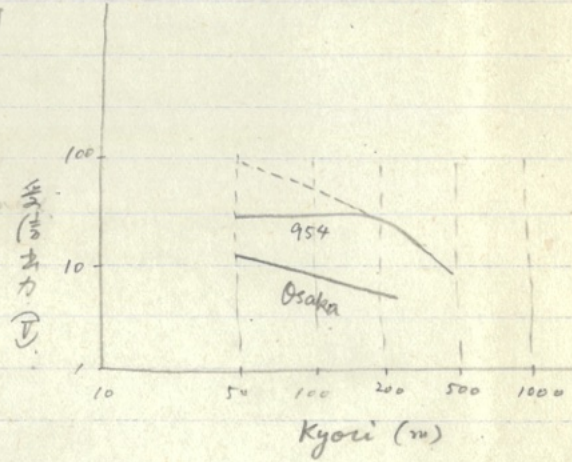


Superheterodyne R.



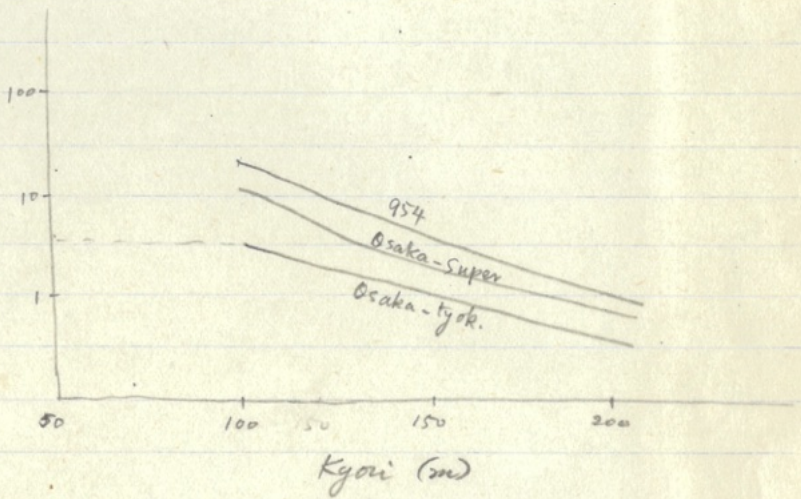
大波長受信機ト、検波感度、比較

Kando-Hikaku

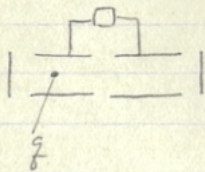


Input 小 - local 大
大 小

in' surcha goi' rasi'

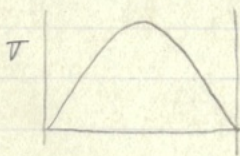


三F嘴乾 大波長



$$1. V = V_a \left(1 - \left(\frac{x}{x_0}\right)^2\right) \quad (\text{Assumption})$$

$$E = -\frac{\partial V}{\partial x} = 2 \frac{V_a}{x_0} \frac{x}{x_0}$$



$$1' V = V_a' \cos \frac{\pi x}{2 x_0}$$

$$E = \frac{\pi}{2} \frac{V_a'}{x_0} \sin \frac{\pi x}{2 x_0}$$

$$\text{Oscillating Volt.} = \Delta V = \tilde{V} \sin \pi \frac{x}{x_0}$$

$$E = -\pi \frac{\tilde{V}}{x_0} \cos \pi \frac{x}{x_0}$$

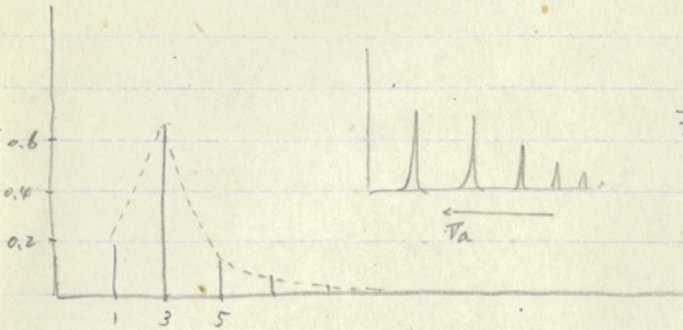
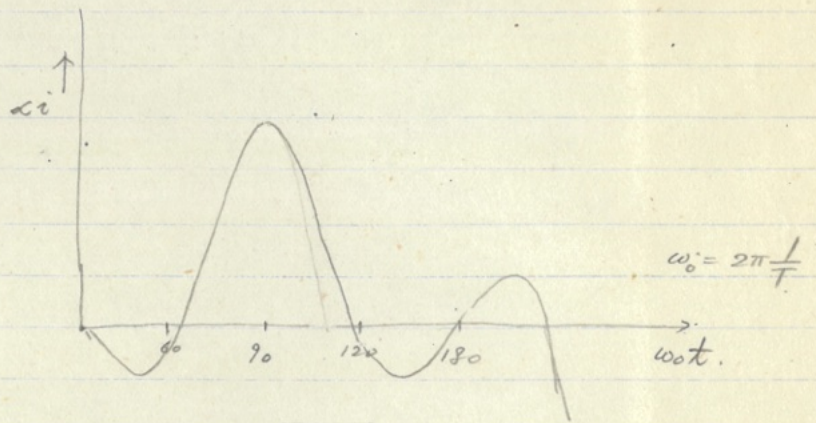
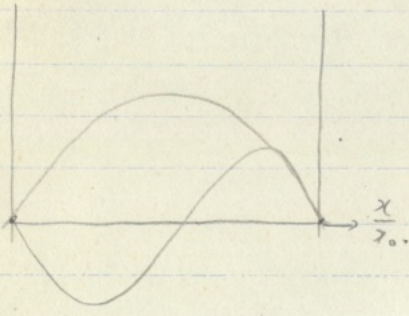
induced current $i = g(\text{grad } V_i \cdot 20)$

$$= g \pi \frac{v_0}{v} \sqrt{1 - \left(\frac{x}{x_0}\right)^2} \cos \pi \frac{x}{x_0}$$

$$v = v_0 \sqrt{1 - \left(\frac{x}{x_0}\right)^2}$$

$$A = \frac{x_0}{v_0} \left\{ \sin^{-1} \frac{x}{x_0} + \frac{\pi}{2} \right\}$$

(Velocity² wa omomi static pot. de kimaru)

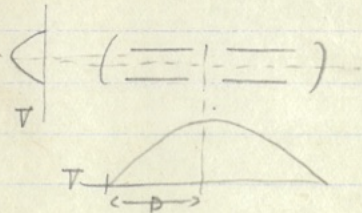


$$\frac{x_0}{\pi v_0 g} \dot{z} = \sqrt{1 - \left(\frac{x}{x_0}\right)^2} \cos \pi \frac{x}{x_0}$$

$$\frac{x}{x_0} = \sin(\omega_0 t - \pi/2)$$

Fourier-spectrum

Kotani Yūdo-denryū ni suite

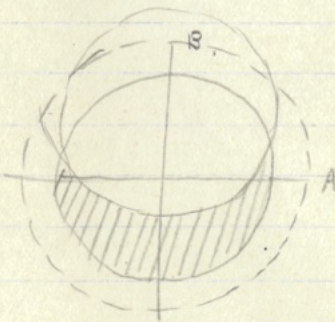


$$\frac{d^2x}{dt^2} = \omega_0^2 x + g(x) \cos \omega_0 t \quad -g(-x) = g(x)$$

$$g(x) = g_1 x + g_2 x^3$$

non-linear term s: $\pi, 3\pi, 5\pi, \dots$ $x = A \cos \omega_0 t + B \sin \omega_0 t$

$$A = \text{const}, \quad B = B_0 + \frac{g_2}{2} t$$



Yoko no Denryū ni tsururu Wana

$$\frac{d^2z}{dt^2} = +\lambda^2 z$$

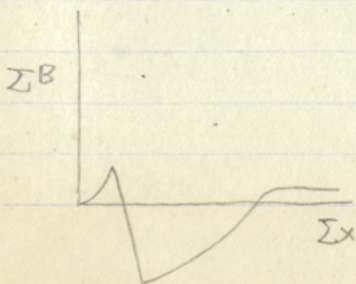
life time $T = T(\alpha)$

initial direction
of emissions

$$p(\alpha) dT \propto \frac{\cosh \lambda T}{\sinh \lambda T} dT$$

$$\sum x = \sin \omega t \sum B$$

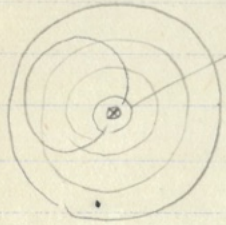
$$\sum B < 0$$



$$Q = \frac{e}{2} \left[1 + \sum_1^{\infty} f_n \left(\frac{z}{a} \right) \left(\frac{x_0}{a} \right)^{2n+1} \right]$$

Miyazima

Magnetron m-tuite
back-heating



Energy wo ushatta Densi

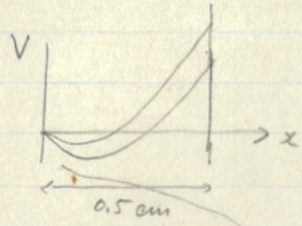
- Gen'in
1. Collision
 2. Plasma
 3. Gas

(Langmuir)

Utiyama

Relaxation time of space charge.

V no Hukka m-taite charge distribution ga kawaru.



$I_s = 30 \text{ mA}$
 $\theta = 2000^\circ \text{K}$
 $V = 50 \text{ v.}$

$\rho = 1.88 \times 10^{10} \text{ cm}^{-3}$

1. Sintintaisya (of electron)
2. self-consistent field
3. collision

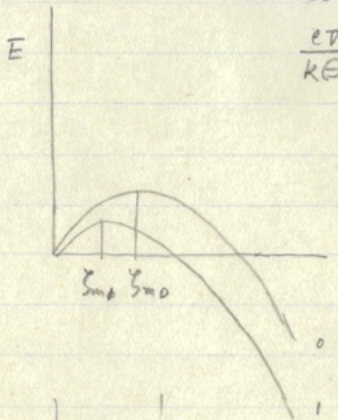
1. collision mean free path $\lambda = \frac{m^2 v^4}{\rho e^4} \theta^2 \sim 20 \text{ cm}$ — negligible

2. Sintintaisya

$L \cdot x = \zeta$
 $\frac{eV}{k\theta} = y$

equilibrium no Atai.

$Q(1) - Q(0) > 0$



Boltzman distribution
 $\rho = \int_{v_{min}}^{\infty} f(x, v) dv$

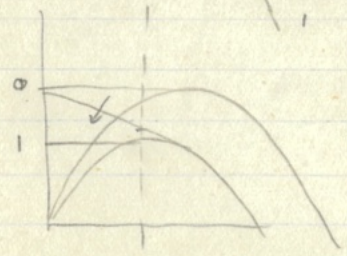
$f_0 = A e^{-\frac{\frac{m}{2} v^2 - e\phi_0(x)}{k\theta}}$

$\int_0^{\tau} \left(\int_{v(t)}^{\infty} \rho_0 dv - \int_{v(t)}^{\infty} \rho_{m1} dv \right) dt = Q(1) - Q(0)$

$\sim e^{-\lambda t} \quad \lambda = \sqrt{\frac{k\theta}{2m}} \text{ i.e. } \frac{-y_{m0}}{2} = 10^9 \times 1.7 \text{ sec}^{-1}$

$\lambda \tau \ll 1$ to solve

$\tau = \frac{1}{2} \frac{1}{\sqrt{\pi e j}} |y_m|^{1/4} (2m k\theta)^{1/4}$
 $= 2.41 \times 10^{-10} \text{ sec}$



(2) no Gen'in no Toriatukai

~~Asotoko~~

$$\varphi_0 \rightarrow \varphi_0 + \frac{a}{l}x \rightarrow \varphi_1$$

possol. $\varphi(x,t) = \varphi_1(x) + (\varphi'_1 - \varphi_1) e^{-\lambda t}$

$$\left(\ddot{f} + v f_x + \frac{e}{m} \varphi_x f_v = 0 \rightarrow \frac{d^2}{dx^2} \varphi - \dot{\varphi}/c^2 = 4\pi e \int_{v(x,t)}^{\infty} f dv \right)$$

no kawarimi

$$f(x,v,t) = f_1(x,v) + e^{-\lambda t} g(x,v)$$

g no Diff. Eq.: $\lambda g = v g_x + \frac{e}{m} \varphi_{1,x} g_v + \frac{e}{m} (\varphi'_1 - \varphi_1)_x f_1$

$$g = \{ \Phi(x,v) + h(E) \} \quad E = \frac{1}{2} m v^2 - e \varphi_1(x)$$

boundary cond. $g(0,v) = 0 \rightarrow h$ ga kimaru.

$$\int f_0 dv dx = \int f(x,v,t=0) dv dx \quad \lambda \text{ ni tanime algeb. eq.}$$

Mite ① Zatuon no Gen'in

1. Gas.

(1.1) Gas pressure - Zatuon no Kankei

(1.2) gas no Syurui. H_2 — reduction ni tukaru

H_2O

N_2

2. (1.3) Dōsa Zuyōtai — A-Kindō or B-Kindō?

② Crystal detector