

ANNEXURE-2

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% FFT program
function F=fft(varargin)
for k = 1:length(varargin)
    if (isa(varargin{k},'uint8'))
        varargin{k} = double(varargin{k});
    end
end
F = fft(varargin{:});

% ELLIPTICAL FILTER
function [num, den, z, p] = ellip(n, Rp, Rs, Wn, varargin)
[btype,analog,errStr] = iirchk(Wn,varargin{:});
error(errStr)
if n>500
    error('Filter order too large.')
end
if ~analog,
    fs = 2;
    u = 2*fs*tan(pi*Wn/fs);
else
    u = Wn;
end
if btype == 1
    Wn = u;
elseif btype == 2
    Bw = u(2) - u(1);
    Wn = sqrt(u(1)*u(2));
elseif btype == 3
    Wn = u;
elseif btype == 4
    Bw = u(2) - u(1);
    Wn = sqrt(u(1)*u(2));
end
[z,p,k] = ellipap(n, Rp, Rs);
[a,b,c,d] = zp2ss(z,p,k);

if btype == 1
    [a,b,c,d] = lp2lp(a,b,c,d,Wn);
elseif btype == 2
    [a,b,c,d] = lp2bp(a,b,c,d,Wn,Bw);
elseif btype == 3
    [a,b,c,d] = lp2hp(a,b,c,d,Wn);
elseif btype == 4
    [a,b,c,d] = lp2bs(a,b,c,d,Wn,Bw);
end
```