**Sinewave Sweep after 2019/03/26**

|  |  |
| --- | --- |
|  | sinewave |
| Spatial wavelength (um) | [150, 225, 300, 450] |
| Spatial range radium (um) | 300 |
| Spatial wavelength (pixel) | [45.5, 68.2, 90.9, 136.4] |
| Spatial range (pixel) | 91 |
| Spatial wavelength (radius of SAC) | [1, 1.5, 2, 3] |
| Spatial range (radius of SAC) | 2 |
| Temporal frequency (Hz) | [1/2, , 1, , 2, , 4, ] |
| Temporal frequency (frames) | 1/15 |
| Temporal duration (sec) | 5 |
| Temporal duration (frames) | 300 |

(Note: Radius of SAC is around 150 um. Spatial range goes out to twice the radius.)

Total number of epochs = 8 TF \* 4 SF \* 2 Dir = 64

Estimated total experimental time = 64 epoch \* (5 second trial + 1.5 second interleave) \* 3 trials = 21 mins

If 20-minute is too long, half the sweep of spatial frequency, as well as the temporal frequency.

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| --- | --- |
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| Spatial range (pixel) | 91 |
| Spatial wavelength (radius of SAC) | [1, 1.5, 2, 3] |
| Spatial range (radius of SAC) | 2 |
| Temporal frequency (Hz) | [1/2, 1, 2, , 4, ] |
| Temporal frequency (frames) | 1/15 |
| Temporal duration (sec) | 5 |
| Temporal duration (frames) | 300 |

Total number of epochs = 5 TF \* 2 SF \* 2 Dir = 20

Estimated total experimental time = 64 epoch \* (5 second trial + 1.5 second interleave) \* 3 trials = 6.5 mins

**Opponent stimulus to be determined by sinewave sweep**

|  |  |
| --- | --- |
|  | sinewave |
| Spatial wavelength (um) | 150 |
| Spatial range (um) | 150 |
| Spatial wavelength (pixel) | 30 |
| Spatial range (pixel) | 30 |
| Spatial range (radius of SAC) | 2 |
| Spatial wavelength (radius of SAC) | 1 |
| Temporal frequency (Hz) | 4 |
| Temporal frequency (frames) | 1/15 |
| Temporal duration (sec) | 5 |
| Temporal duration (frames) | 300 |
| Phase | 8 |

Total number of epochs = 8 Phases \* 3 Dir = 24

Estimated total experimental time = 60 epoch \* (5 second trial + 1.5 second interleave) \* 3 trials = 8 mins

Estimated total experimental time = 60 epoch \* (5 second trial + 1.5 second interleave) \* 3 trials = 20 mins

**Apparent Motion**

**Aim: 3 bars within receptive field, 2 bars outside 🡪 50 um/pixel?**

**Single bar: space**: 1 pixel, across 5 positions, 60 frames, 1 second

Number of epochs = 5 Positions \* 2 Polarity = 10

**Apparent motion**: 2 nearby pixels, across 5 positions, 60 frames (first bar) + 45 frames (second bar)

Number of epochs = 4 Positions \* 2 \* 2 Polarity \* 2 Directions = 32

**Simultaneous two bar**: 2 nearby pixels, across 5 positions, 60 frames (maybe 45 frames is enough).

Number of epochs = 4 Positions \* 2 \* 2 Polarity = 16

Estimated total experimental time = (10 + 32 + 16) \* (1 second + 0.5 second interleave) \* 3 trials = 4.5 min

**Scintillator**

**Aim: 3 bars within receptive field, 2 bars outside 🡪 50 um/pixel?**

|  |  |
| --- | --- |
|  | sinewave |
| Spatial range (um) ? |  |
| Spatial range (pixel) ? |  |
| Spatial offset (um) ? |  |
| Spatial offset (pixel) ? |  |
| Temporal offset (second) | [0, 1, 2, 3, 4, 5] \* 0.05 |
| Temporal offset (frames) | [0, 1, 2, 3, 4, 5] |
| Temporal duration (second) | 15 second? |

Number of epochs = 6 Temporal offset \* 2 Polarity \* 2 Dir = 24

Estimated total experimental time = 24 \* (15 second + 2 second interleave) \* 3 trials = 21 min.

Two version:

One with unrelated stochastic stimulus

One with gray.

**White noise stimulus**

**10 positions, 25 um per pixel. Frame refresh rate 30Hz.**