

KAGRA detector status & update of the KAGRA PEM

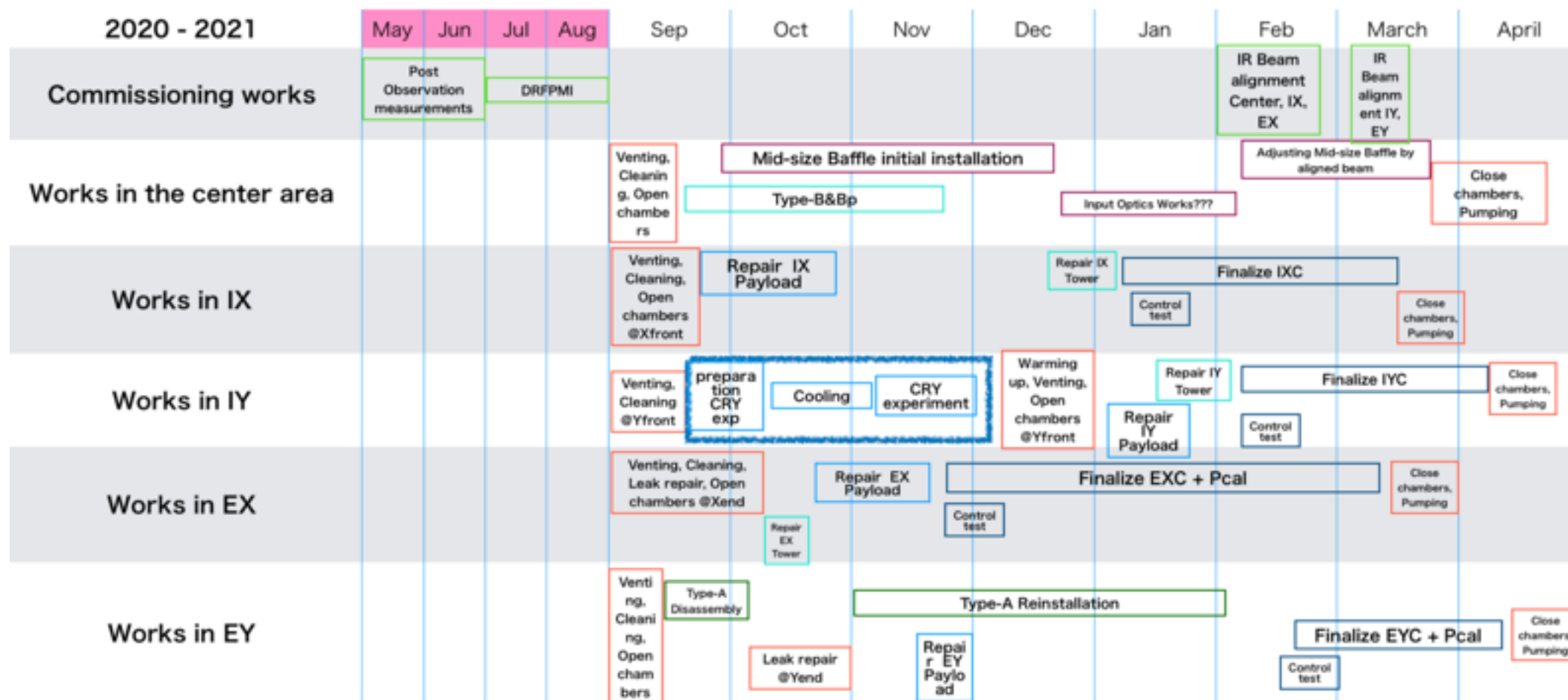
Virgo-KAGRA PEM meeting

2020/06/19

Takaaki Yokozawa

KAGRA schedule

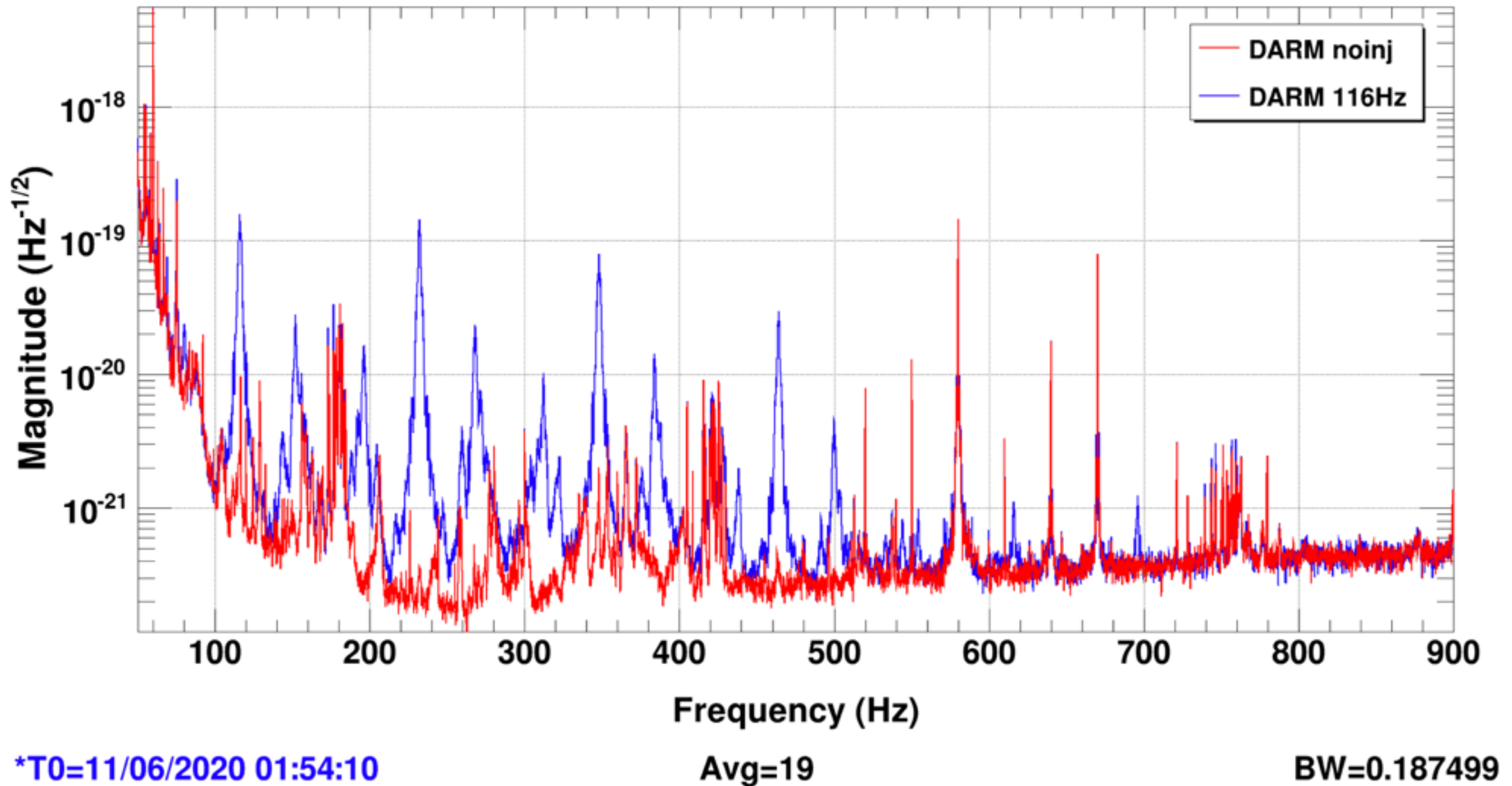
- Jun. : Post observation run
 - Interferometer parameter measurements
 - Suspension parameter measurements
 - PEM injection
- Jul. - Aug.
 - DRFPMI lock trial
- Sep. -
 - Installation work for O4



Backups

Acoustic injection to REFL table

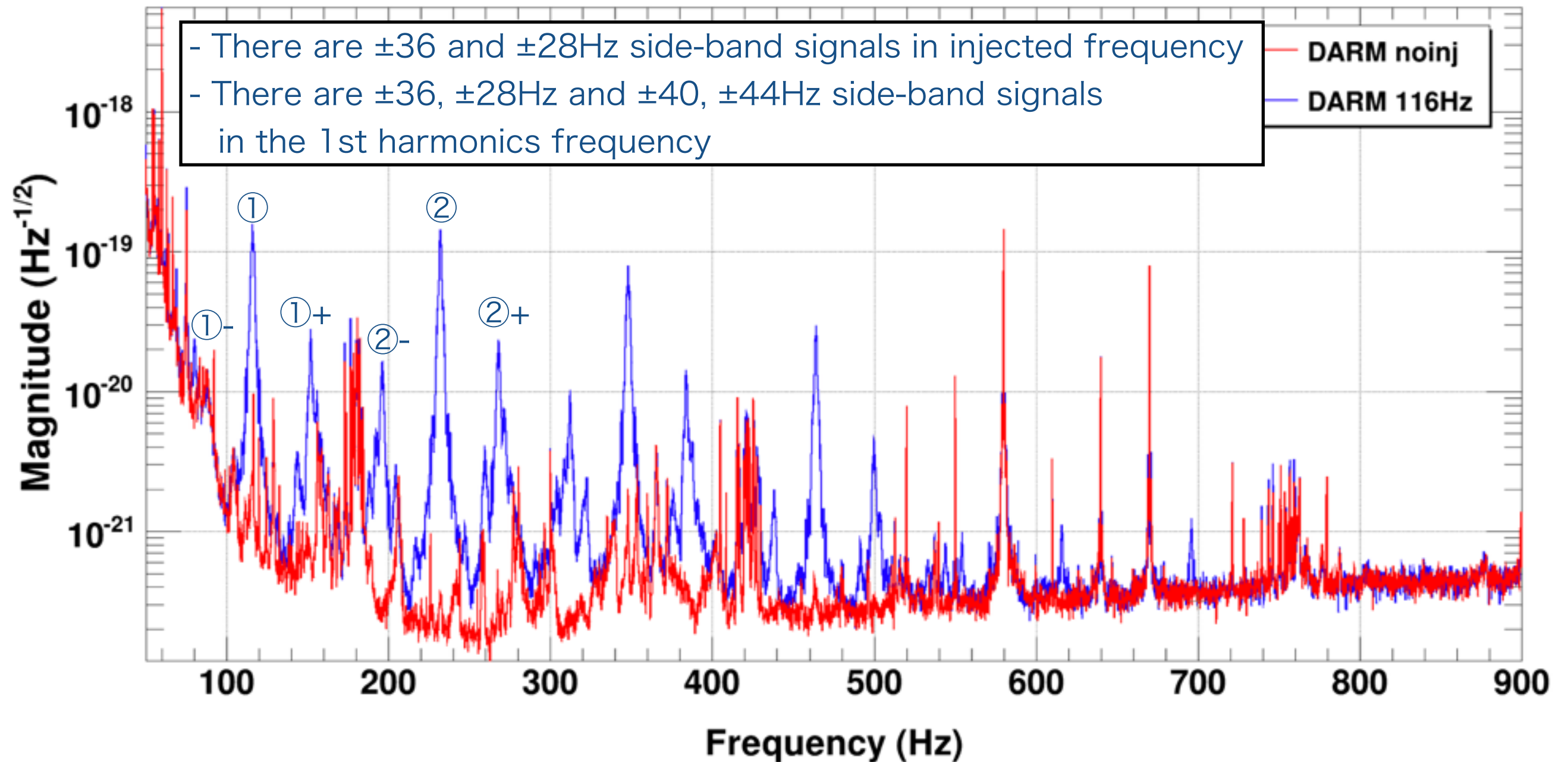
Power spectrum



- We performed the acoustic injection to REFL table and PSL room

Acoustic injection to REFL table

Power spectrum



*T0=11/06/2020 01:54:10

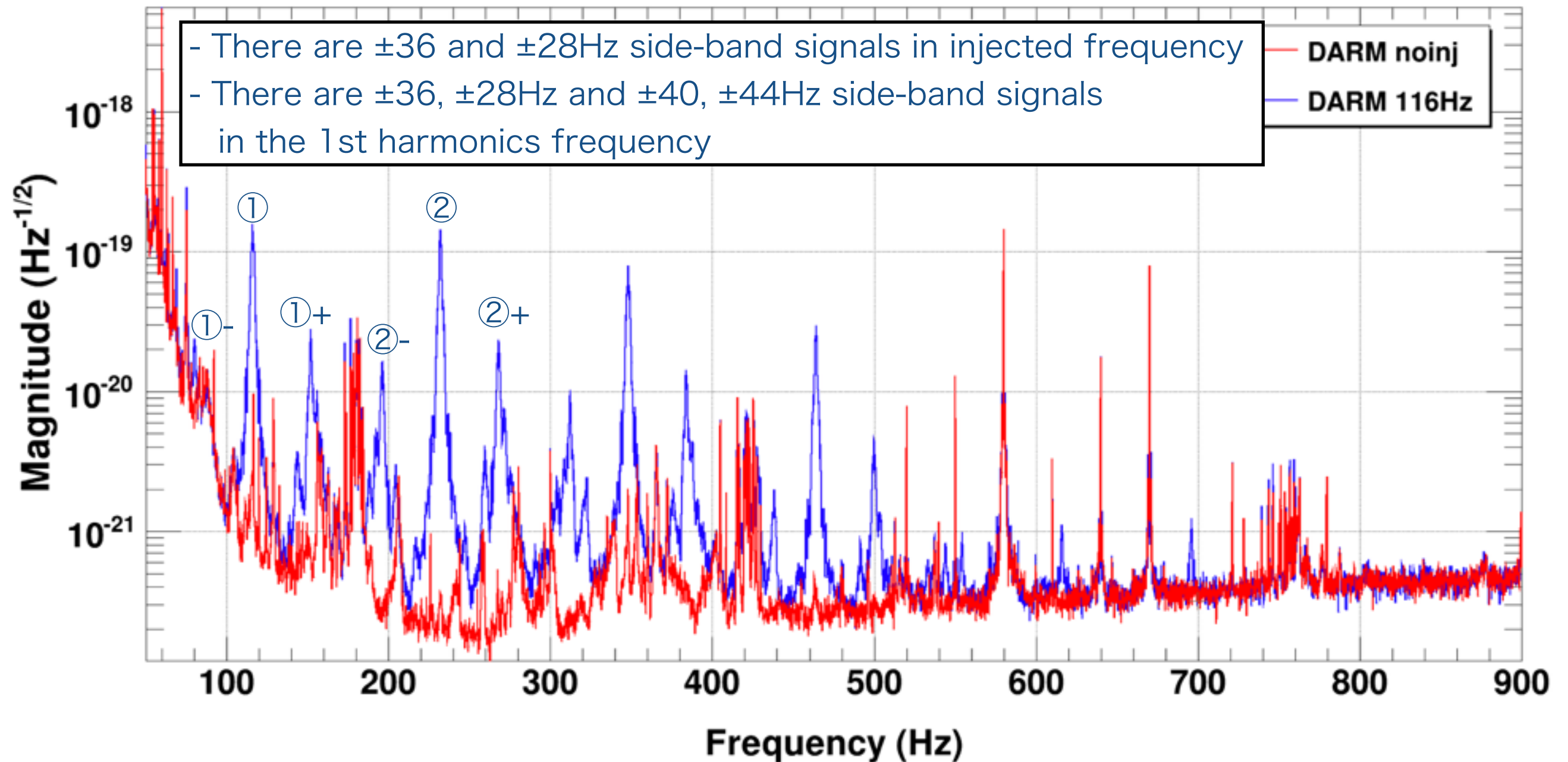
Avg=19

BW=0.187499

① Injected signal (116Hz) ①- 80(=116-36Hz) sideband (Hidden 88Hz ?)
①+ 152(=116+36)Hz, 144(=116+28)Hz sideband

Acoustic injection to REFL table

Power spectrum



*T0=11/06/2020 01:54:10

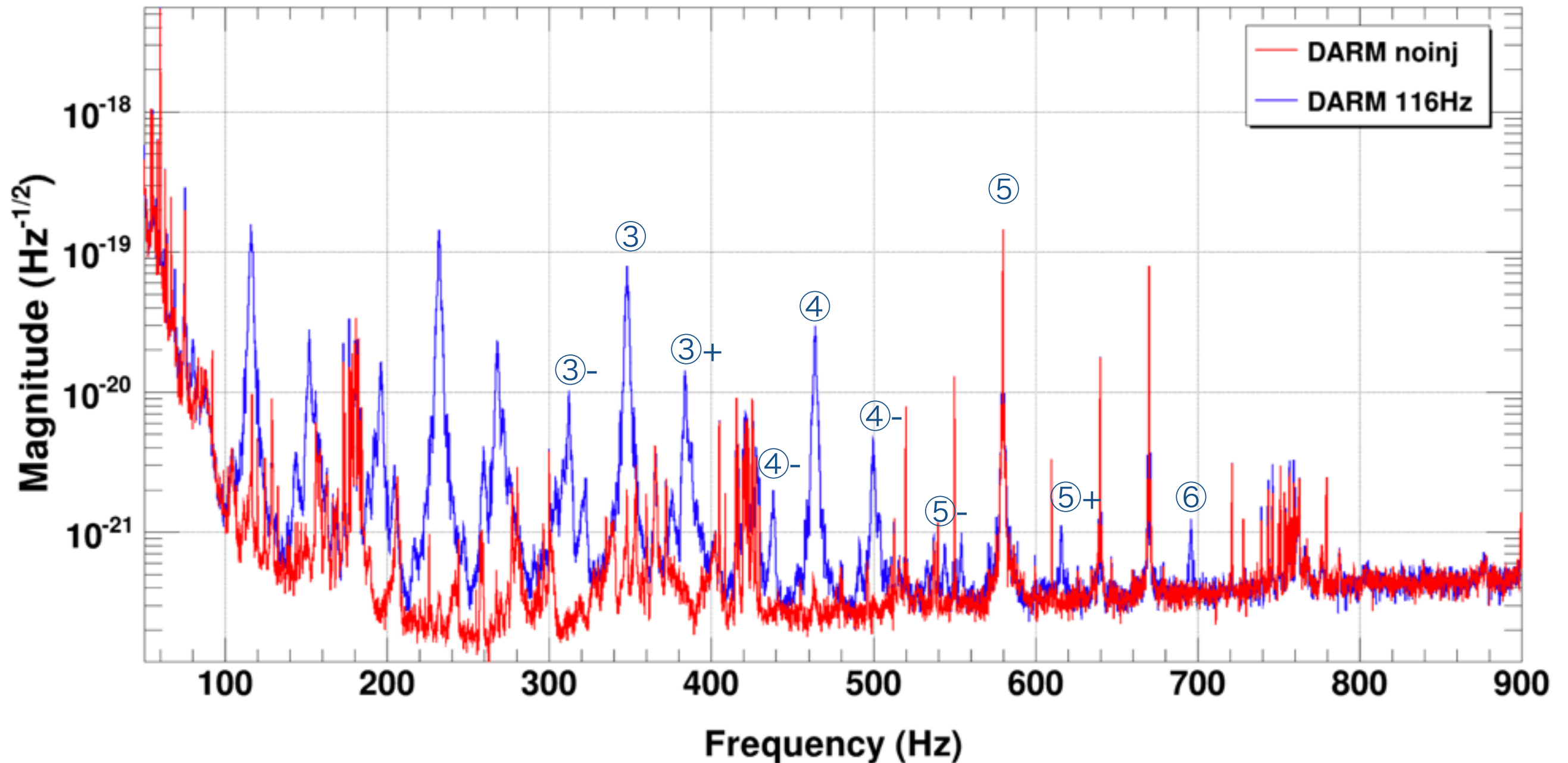
Avg=19

BW=0.187499

- ② 1st harmonics signal (232Hz) ②- 188, 192, 196 and 204 Hz sideband
②- 275, 271, 268 and 159 Hz sideband
 ± 28 , ± 36 , ± 40 and ± 44 Hz sideband

Acoustic injection to REFL table

Power spectrum



*T0=11/06/2020 01:54:10

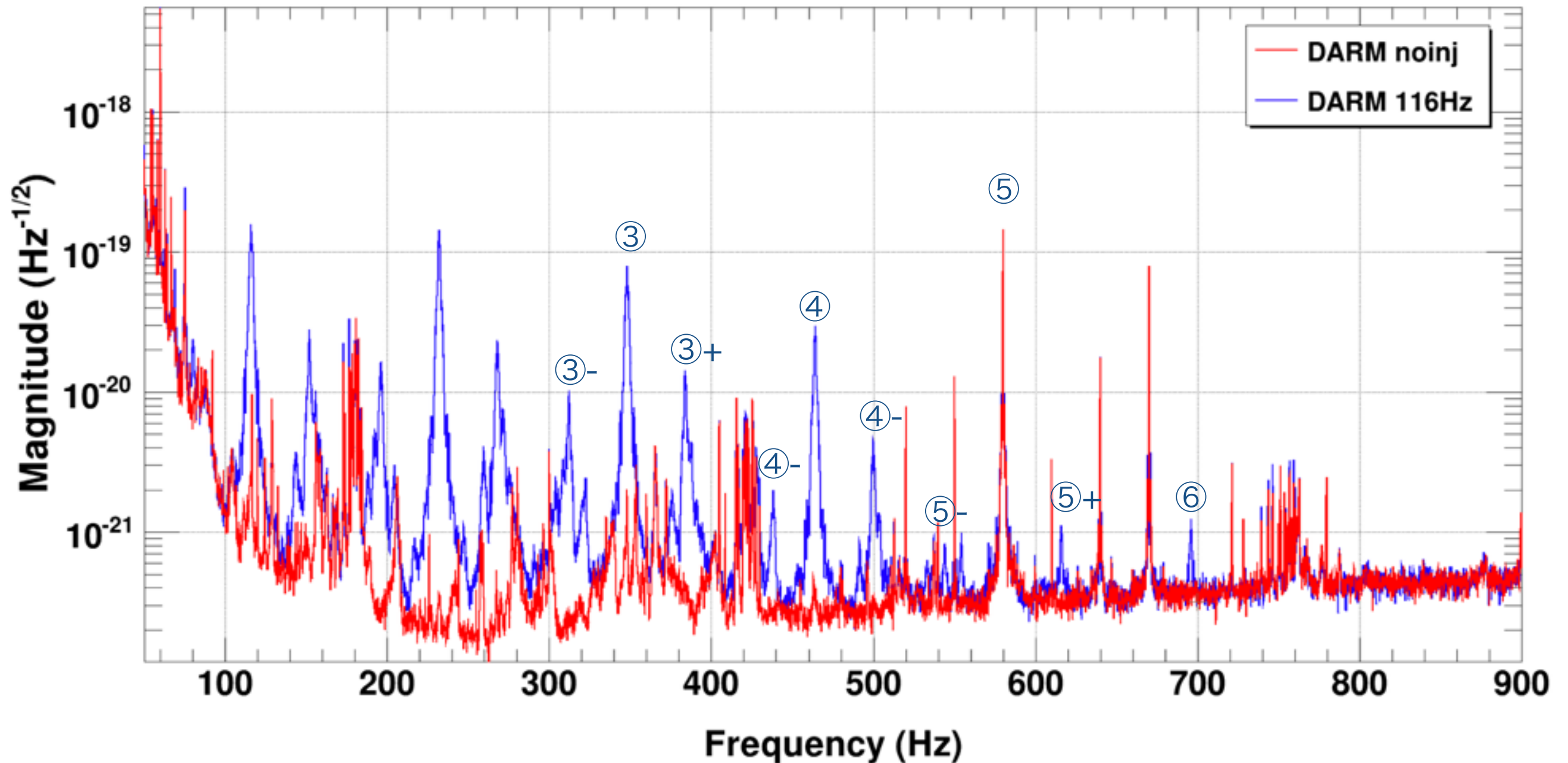
Avg=19

BW=0.187499

- ③ 2nd harmonics signal (348Hz) ③⁻ 312(=348-36)Hz and 322(=348-26)Hz sideband
③⁺ 384(=348+36)Hz, 376(=116+28)Hz sideband

Acoustic injection to REFL table

Power spectrum



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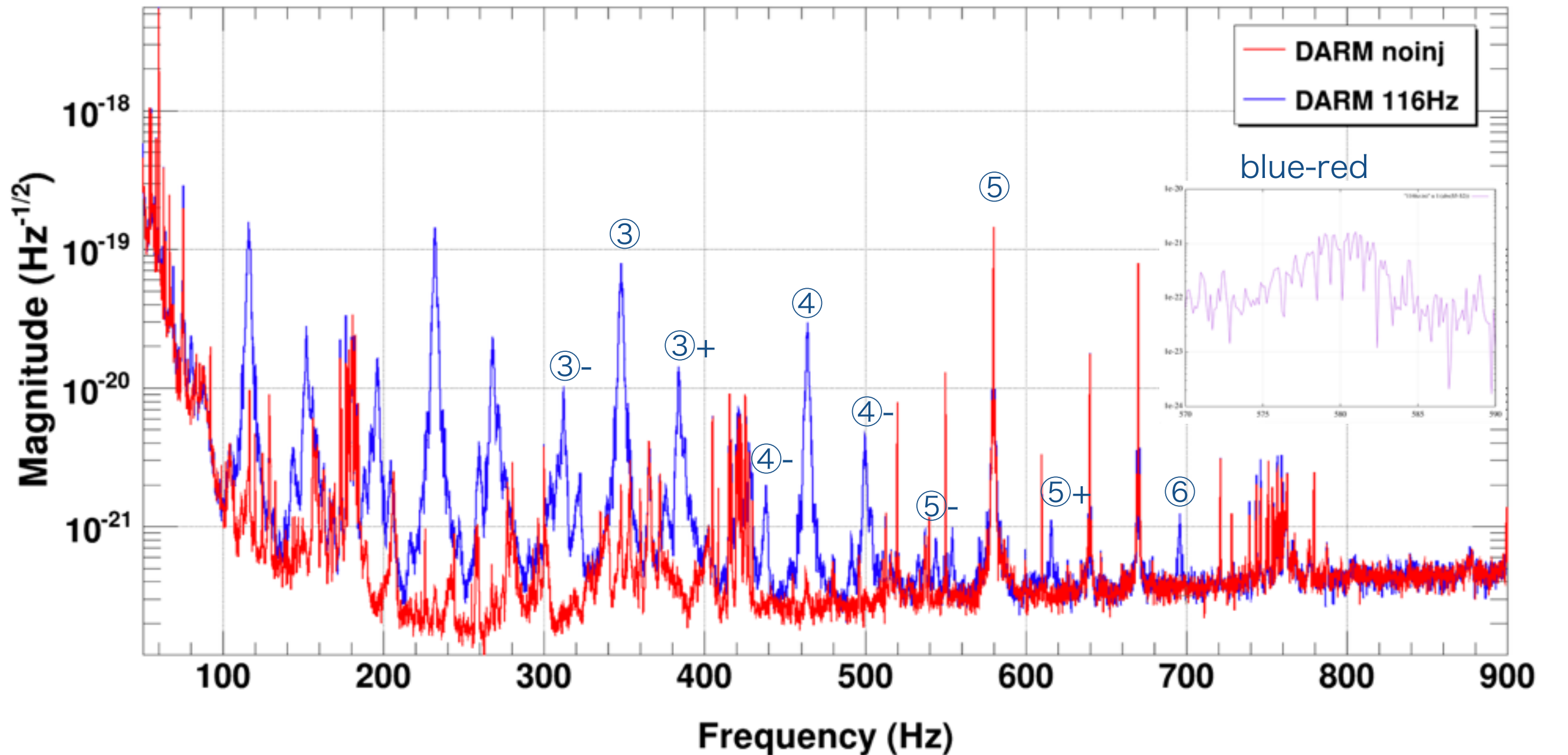
④ 3rd harmonics signal (464Hz)

④- 438(=464-26)Hz sideband, 428(=464-36)Hz hidden?

④+ 492(=464+28)Hz, 500(=464+36)Hz 503(=464+39)Hz

Acoustic injection to REFL table

Power spectrum



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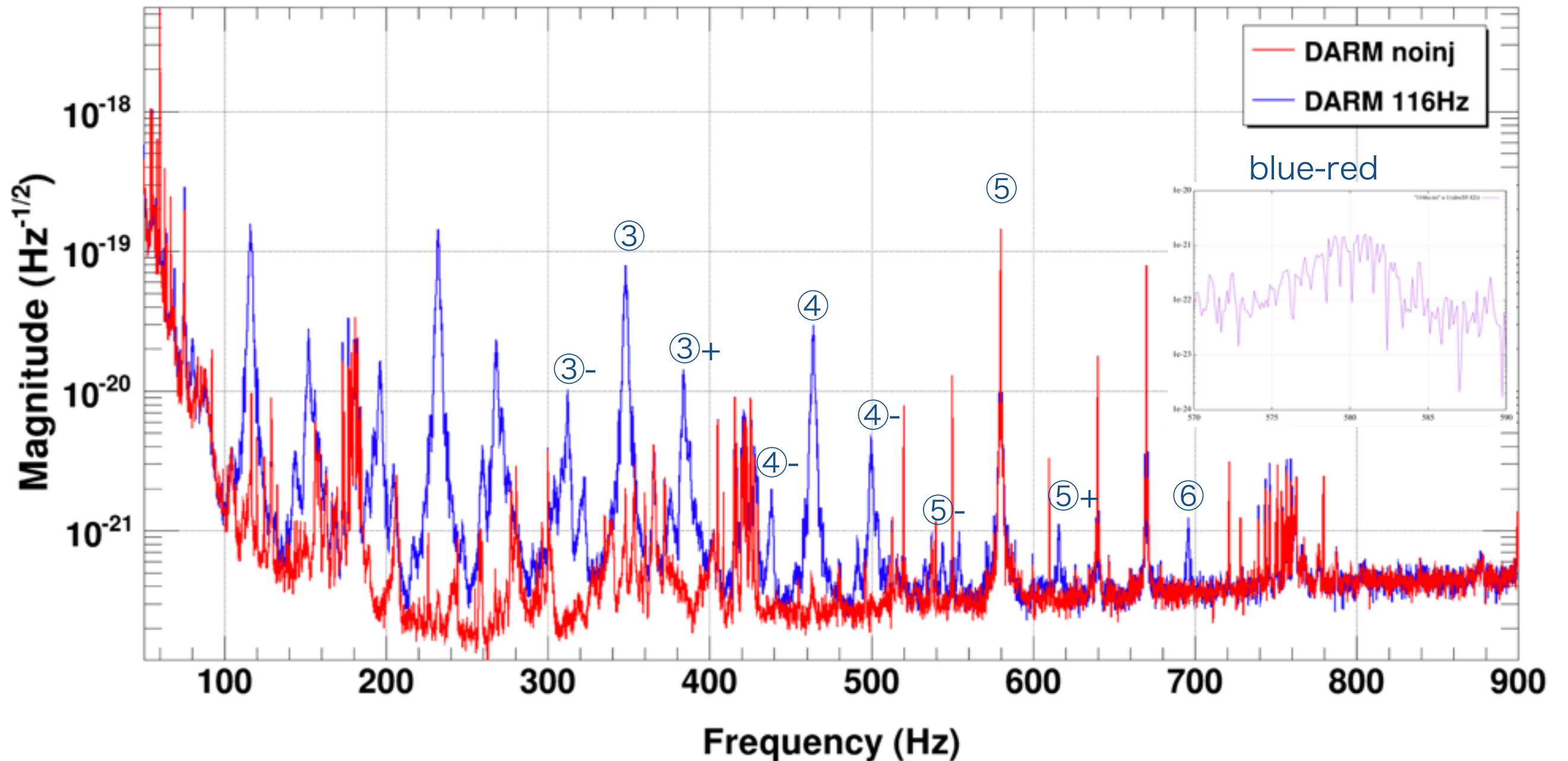
⑤ 4th hidden harmonics signal (580Hz)

⑤⁻ 544(=464-28)Hz sideband, 554(=464-36)Hz hidden?

⑤⁺ 616(=580+36)Hz sideband

Acoustic injection to REFL table

Power spectrum



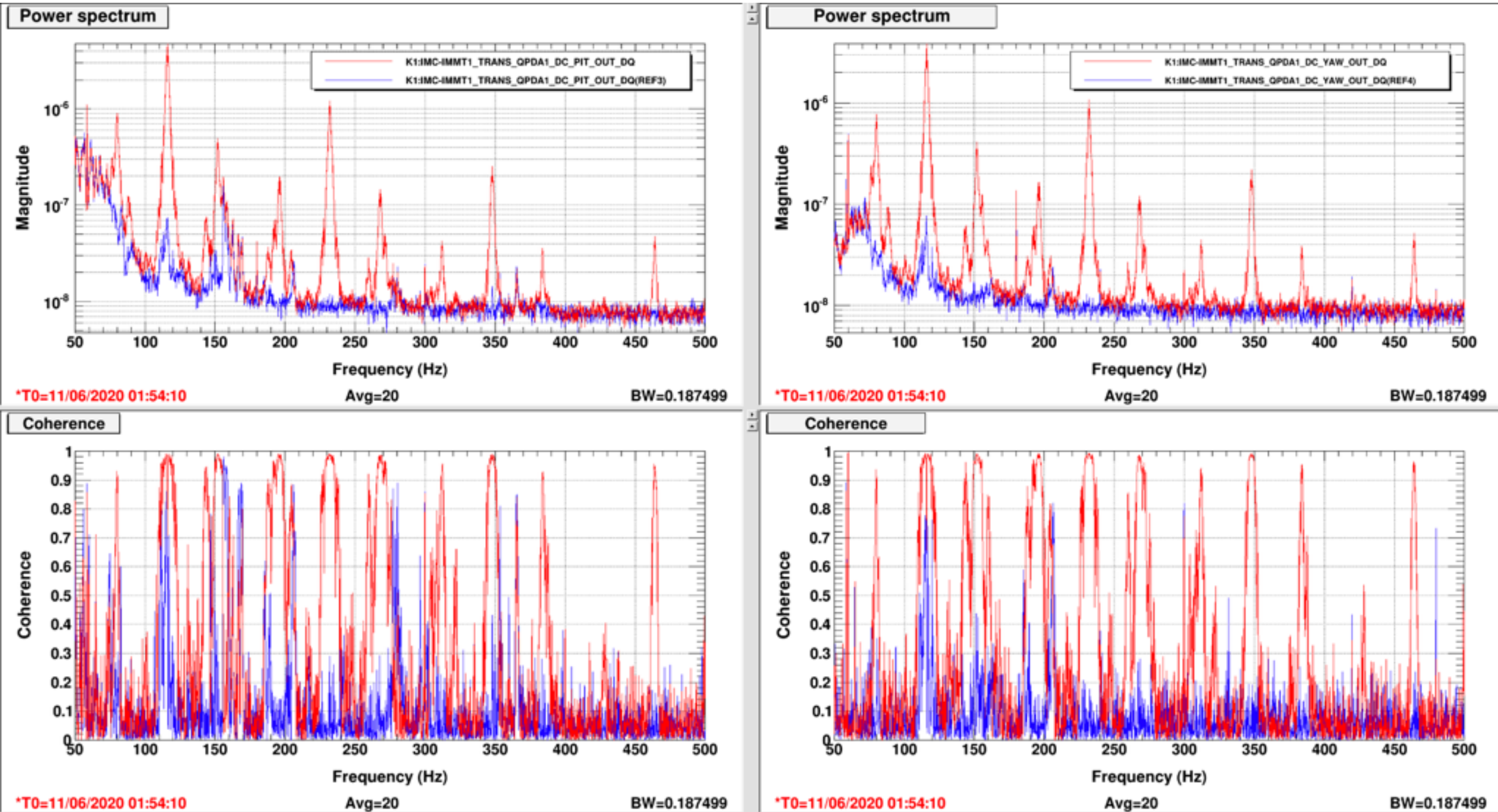
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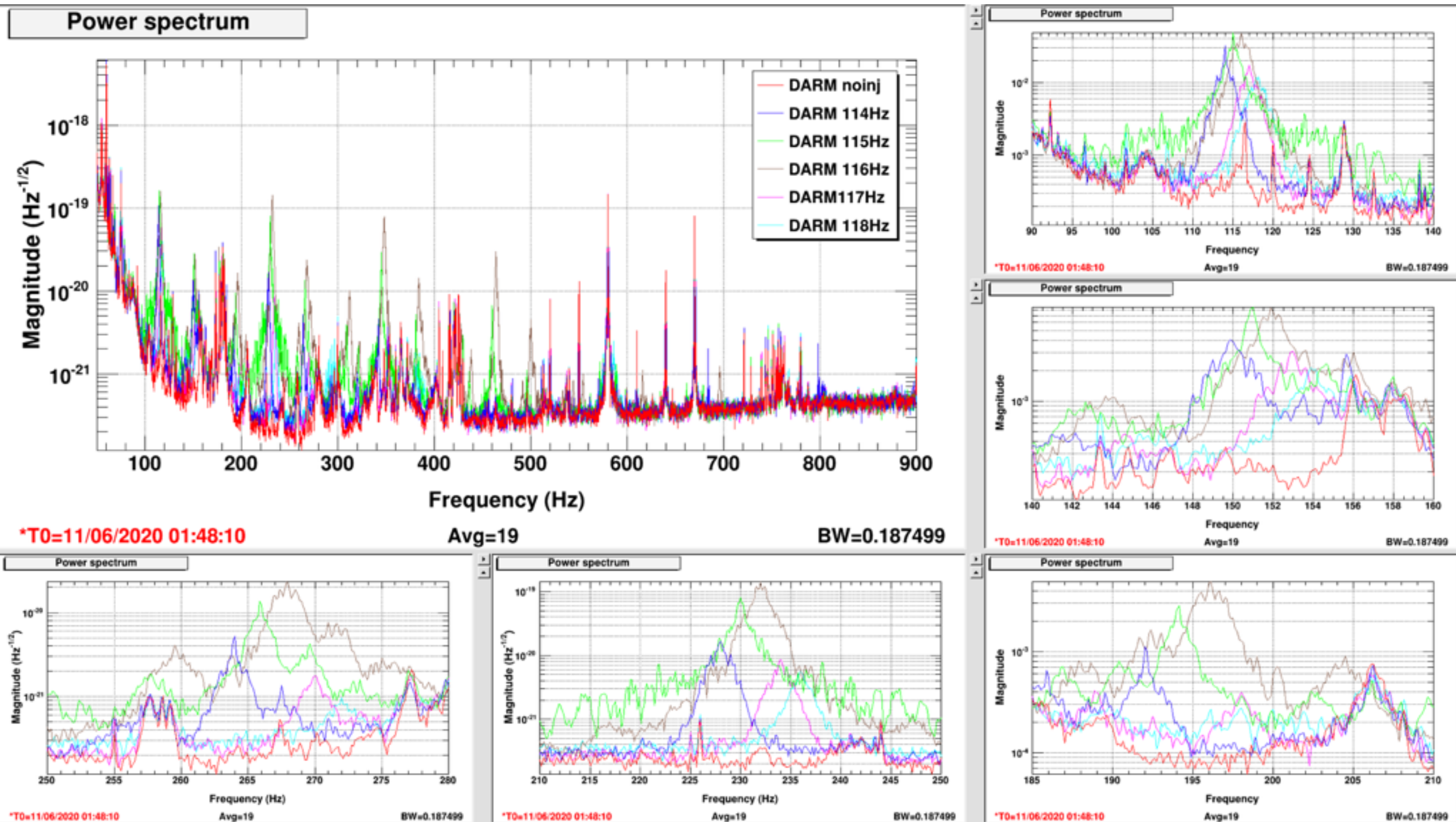
⑥ 5th harmonics signal (696Hz)

Acoustic injection to REFL table



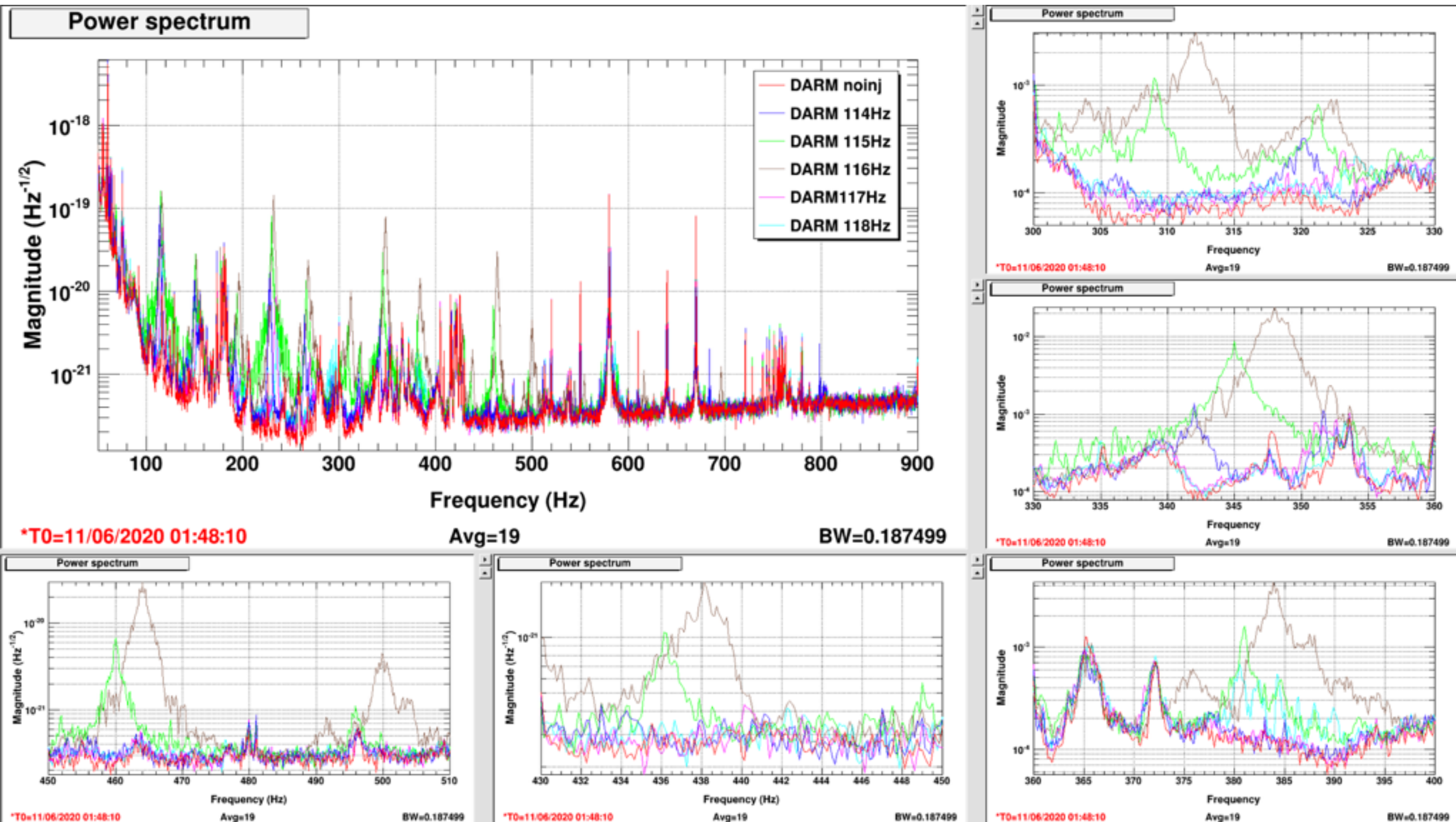
- We performed the acoustic injection to REFL table and PSL room

Acoustic injection to REFL table



- We performed the acoustic injection to REFL table and PSL room

Acoustic injection to REFL table



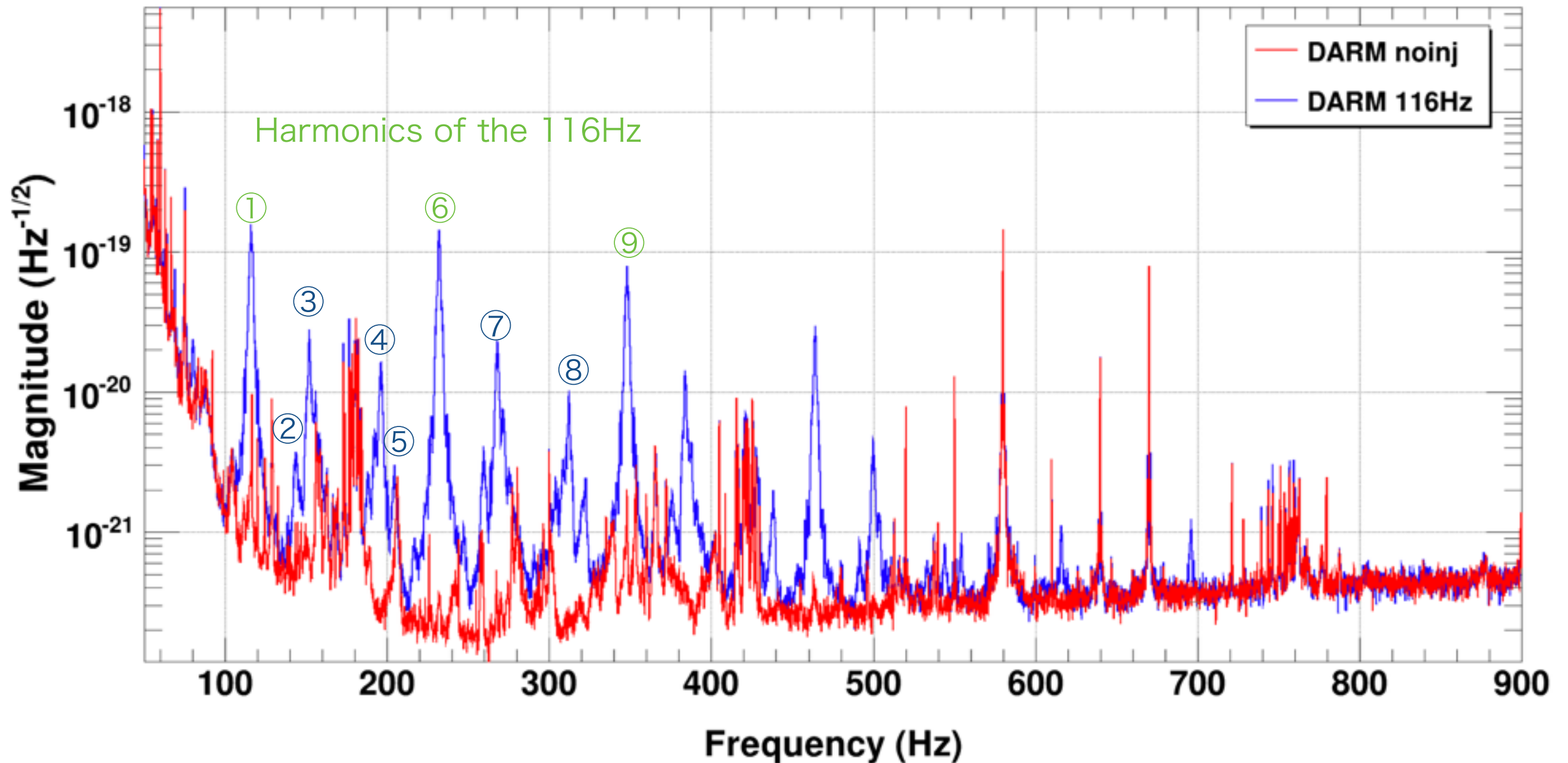
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Homework this weekend

- Bruco analysis to 116Hz injection data
 - IMMT1 trans QPD P/Y have coherence
 - Check other PEM channels
 - Check suspension channels
- Frequency dependent analysis
 - Injection frequency dependence
 - Amplitude

Acoustic injection to REFL table

Power spectrum



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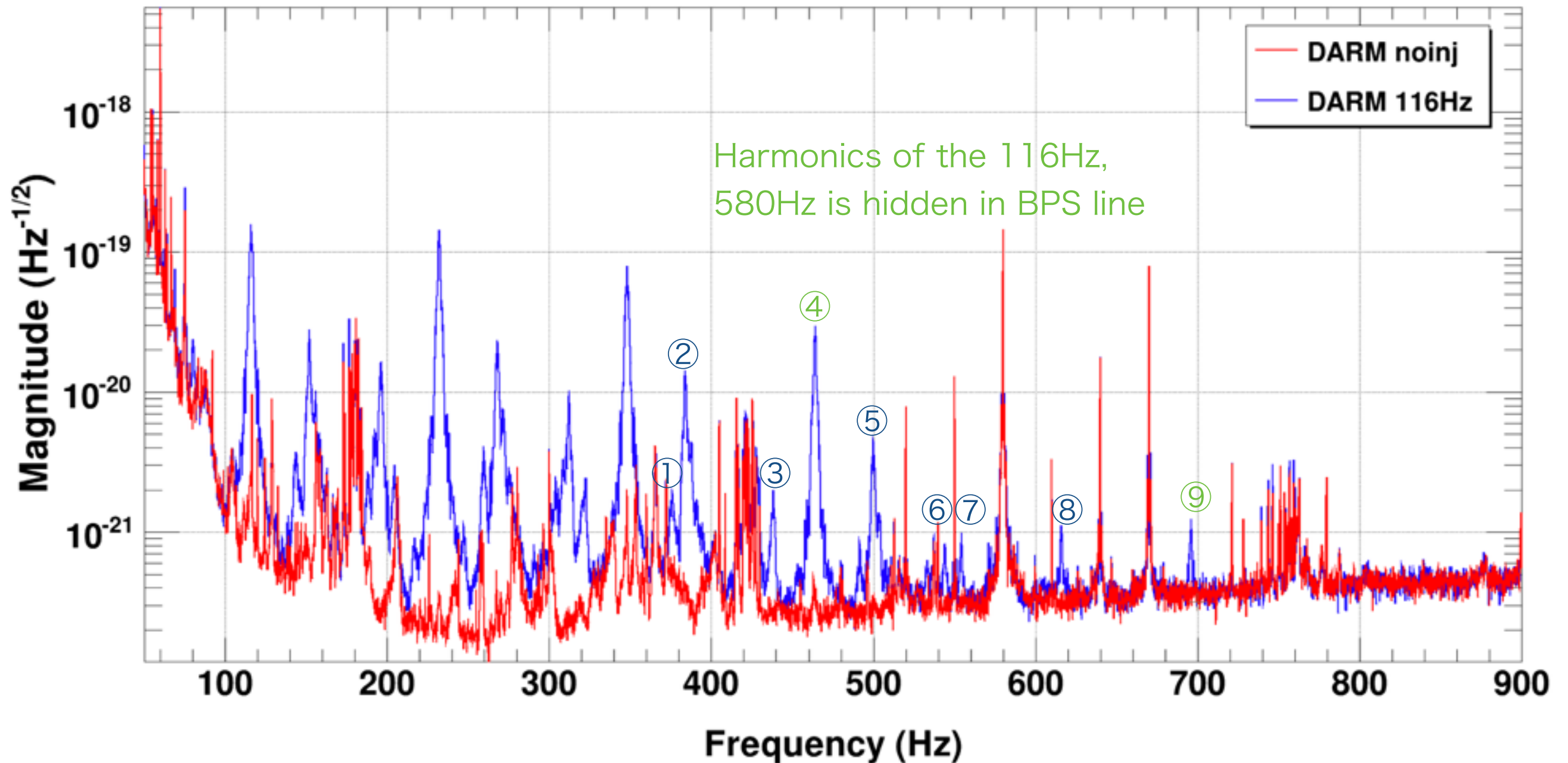
①116Hz ②144Hz ③152Hz (There are 156, 158Hz in noinj) ④188, 192, 196Hz

⑤204Hz (There are 206Hz in noinj) ⑥232Hz ⑦259.5, 268, 271, 275Hz ⑧312, 322Hz

⑨348Hz

Acoustic injection to REFL table

Power spectrum



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①376Hz ②384Hz ③438Hz ④464Hz ⑤491.5, 500, 503Hz ⑥544Hz ⑦554Hz
⑧616Hz ⑨696Hz