C221E Correlation Report

General information

- Session info: http://www3.mpifr-bonn.mpg.de/div/vlbi/globalmm/
- Station feedback: https://www3.mpifr-bonn.mpg.de/div/vlbi/globalmm/sessions/apr22/feedback_apr22.asc
- ALMA and LMT did not observe
- Scan No0074 has GLT-Mopra on M87, common bandwidth 2048 MHz, was correlated separately. There are Mopra-KVN fringes in the scan, but no GLT-Mopra fringe.
- ATCA has large clock offset of 0.09 usec between its same-polarization IFs

Status

what	date
Correlation of 3mm preparing	14 Dec 2022
Correlation of 3mm started	11 Jan 2023
Correlation of 3mm finished; accidentally though still had all scans cropped to 60 sec	13 Jan 2023
Correlation of 3mm ver2 finished	03 Feb 2023
Polarization rotation of Mopra in 3mm ver2 finished	06 Feb 2023
Partial recorrelation (v3) of 3mm of scans with GLT (they had a YIG tuning error)	22 May 2023
Released v3 to PIs	30 May 2023

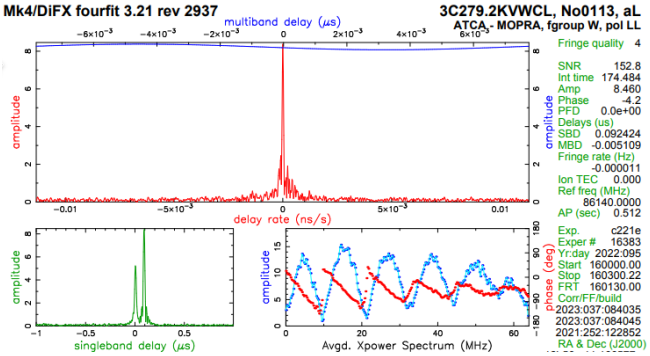
Fringes

Station	Code	Fringes	Plots	Comments
VLBA 3mm		yes		
GLT		yes		~~Fringes only in C221A but later none, reason unknown~~ Tuning error at GLT and 63 MHz off (found 03/2023)
ATCA, ATCA-Mopra		yes	No0113 At-Mp	
Mopra, Mopra-KVN		yes	No0093 Mp-Kt	
GBT, GBT-EU		yes	No0021 Fd-Gb, No0044 Gb-Nn	
KVN		yes		
EU		yes		

Station	Code	Fringes	Plots	Comments
KVN-VLBA		yes	No0085 Ky-Mk	
EU-VLBA		yes	No0033 Nn-Pt	

Notes

- Pv lost most scans to wx, good scans are No0030 095-0240 till No0039 095-0345 inclusive
- GLT observing logs on EHT 2022 wiki note high wind speeds 6-13 m/s throughout C221E, light snow from 06:06 UT, heavy snowfall from 08:04 UT
- ATCA has around 0.09 usec offset between IFs, PI should fringe-fit accordingly

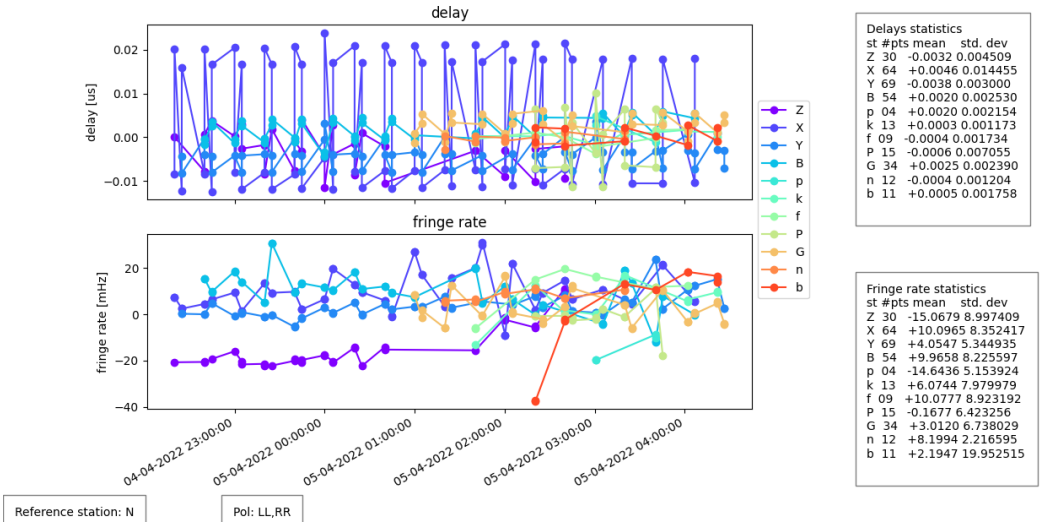


- No GLT fringes in this track in releases v1, v2
- Tuning error at GLT found 03/2023, they were unknowingly 63 MHz off after C221A, fixed in release v3
- Recorrelation of GLT--Mopra in scan No0074 on M87 with full 2048 MHz bandwidth on that baseline: no GLT fringes in v3 either, just Mopra-KVN fringes i.e. Mopra was fine.

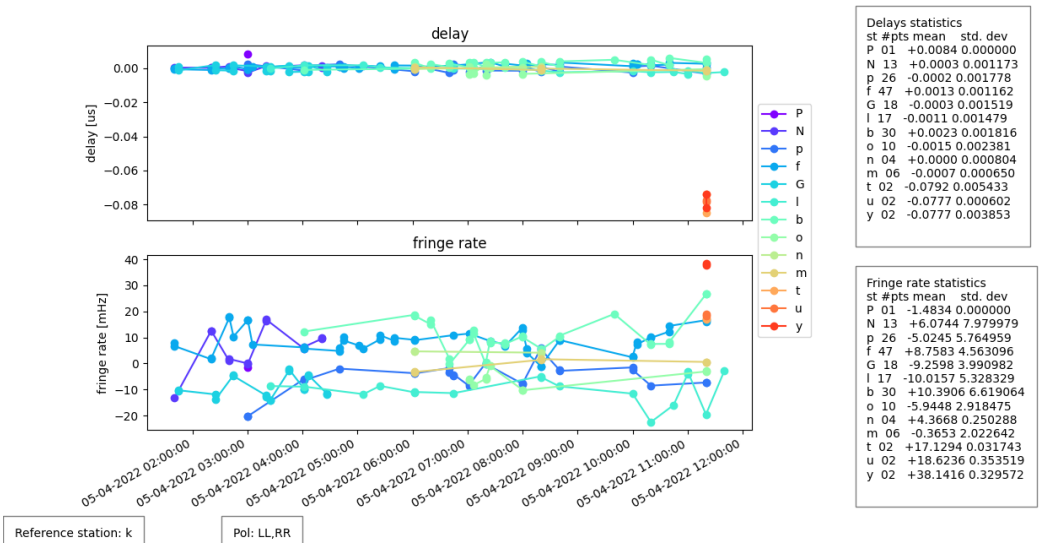
Post-Correlation checks

Residuals 3mm in v1/v2

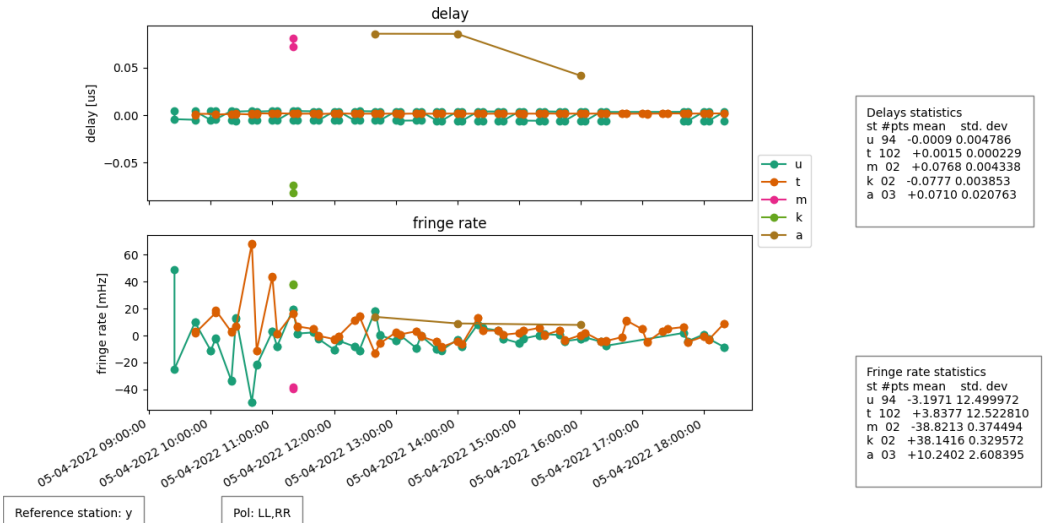
Residuals to NOEMA



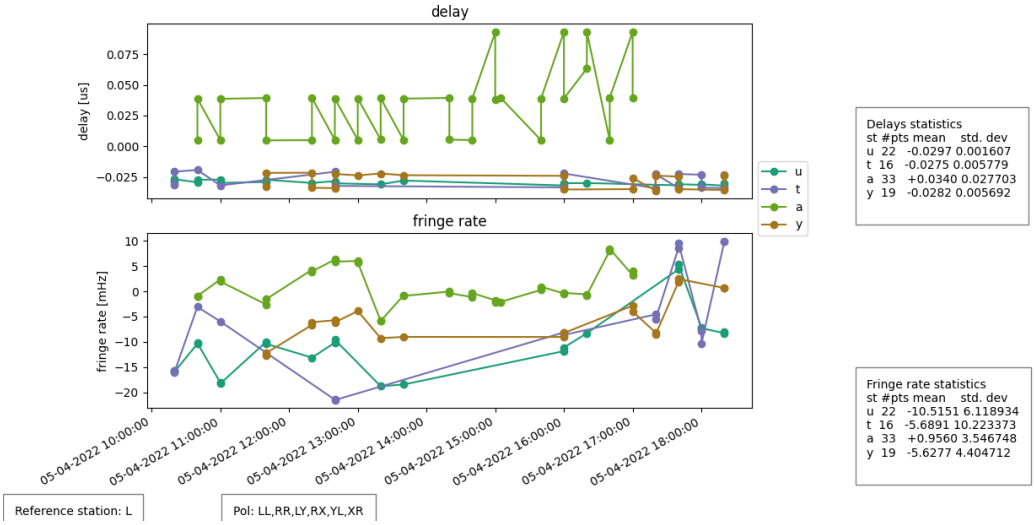
Residuals to Kitt Peak



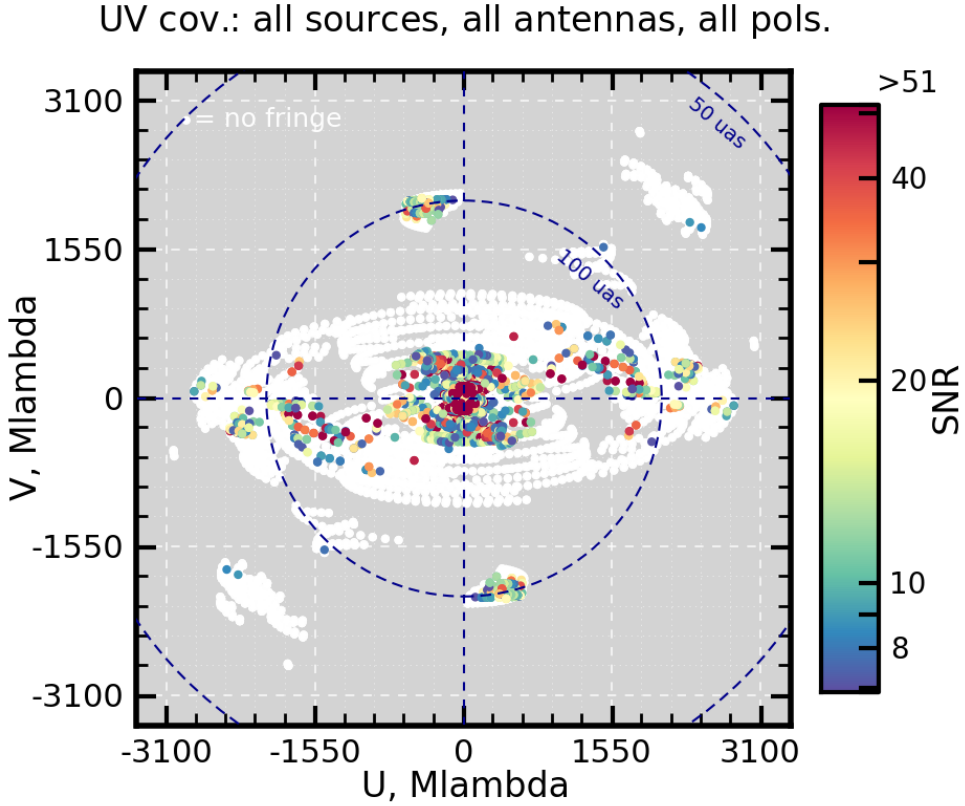
Residuals to Yonsei



Residuals to Mopra



Detections 3mm



FITS completeness (pclist)

```
                                  EF ON YS PV NN MH GL GB NL FD PT LA KP OV
BR MK AT MP KY KU KT
c221e_1000 No0001 3C273 86ghz o  o  o  o  o  o  .  .  .  .  .  .  .  .
.  .  .  .  .  .  .
c221e_1001 No0002   M87 86ghz o  o  o  o  o  o  .  .  .  .  .  .  .  .
.  .  .  .  .  .  .
c221e_1002 No0003 3C273 86ghz o  o  o  o  o  o  .  .  .  .  .  .  .  .
.  .  .  .  .  .  .
```

```
c221e_1003 No0004   M87 86ghz o  o  o  o  o  o  .  .  .  .  .  .  .  .
.  .  .  .  .  .  .
c221e_1004 No0005 3C273 86ghz o  o  o  o  o  o  .  .  .  .  .  .  .  .
.  .  .  .  .  .  .
c221e_1005 No0006   M87 86ghz o  o  o  o  o  o  o  .  .  .  .  .  .  .
.  .  .  .  .  .  .
c221e_1006 No0007 3C273 86ghz o  o  o  o  o  o  .  .  .  .  .  .  .  .
.  .  .  .  .  .  .
c221e_1007 No0008   M87 86ghz o  o  o  o  o  o  o  .  .  .  .  .  .  .
.  .  .  .  .  .  .
c221e_1008 No0009 3C273 86ghz o  o  o  o  o  o  .  .  .  .  .  .  .  .
.  .  .  .  .  .  .
c221e_1009 No0010   M87 86ghz o  o  o  o  o  o  o  .  .  .  .  .  .  .
.  .  .  .  .  .  .
c221e_1010 No0011 3C279 86ghz o  o  o  o  o  o  .  .  .  .  .  .  .  .
.  .  .  .  .  .  .
c221e_1011 No0012   M87 86ghz o  o  o  o  o  o  o  .  .  .  .  .  .  .
.  .  .  .  .  .  .
c221e_1012 No0013 3C273 86ghz o  o  o  o  o  o  .  .  .  .  .  .  .  .
.  .  .  .  .  .  .
c221e_1013 No0014   M87 86ghz o  o  o  o  o  o  o  .  .  .  .  .  .  .
.  .  .  .  .  .  .
c221e_1014 No0015 3C273 86ghz o  o  o  o  o  o  .  .  .  .  .  .  .  .
.  .  .  .  .  .  .
c221e_1015 No0016   M87 86ghz o  o  o  o  o  o  o  .  .  .  .  .  .  .
.  .  .  .  .  .  .
c221e_1016 No0018 3C273 86ghz o  o  o  o  o  o  o  o  o  .  .  .  .  .
.  .  .  .  .  .  .
c221e_1017 No0019   M87 86ghz o  o  o  o  o  o  o  o  o  x  x  x  .  .
.  .  .  .  .  .  .
c221e_1018 No0020 3C273 86ghz o  o  o  o  o  o  o  o  o  o  .  .  .  .
.  .  .  .  .  .  .
c221e_1019 No0021   M87 86ghz o  o  o  o  o  o  o  o  o  o  o  o  x  .
.  .  .  .  .  .  .
c221e_1020 No0023 3C273 86ghz o  o  o  o  o  o  o  o  o  o  o  o  o  .
.  .  .  .  .  .  .
c221e_1021 No0024   M87 86ghz o  o  o  o  o  o  o  o  o  o  o  o  o  .
.  .  .  .  .  .  .
c221e_1022 No0025 3C273 86ghz o  o  o  o  o  o  o  o  o  o  o  o  o  .
.  .  .  .  .  .  .
c221e_1023 No0026   M87 86ghz o  o  o  o  o  o  o  o  o  o  o  o  o  o
o  .  .  .  .  .  .
c221e_1024 No0028 3C273 86ghz o  o  o  o  o  o  o  o  o  o  o  o  o  o
o  .  .  .  .  .  .
c221e_1025 No0029   M87 86ghz o  o  o  o  o  o  o  o  o  o  o  o  o  o
o  .  .  .  .  .  .
c221e_1026 No0030 3C273 86ghz o  o  o  o  o  o  o  o  o  o  o  o  o  o
o  .  .  .  .  .  .
c221e_1027 No0031   M87 86ghz o  o  o  o  o  o  o  o  o  o  o  o  o  o
o  .  .  .  .  .  .
```

```
c221e_1028 No0033 3C279 86ghz o  .  o  o  o  .  .  o  o  o  o  o  o  .
.  .  .  .  .  .  .  .
c221e_1029 No0034   M87 86ghz o  o  o  o  o  o  o  o  o  o  o  o  o  o
o  .  .  .  .  .  .  .
c221e_1030 No0035 3C273 86ghz o  .  o  o  o  .  o  o  o  o  o  o  o  o
o  .  .  .  .  .  .  .
c221e_1031 No0036   M87 86ghz o  o  o  o  o  o  o  o  o  o  o  o  o  o
o  .  .  .  .  .  .  .
c221e_1032 No0038 3C273 86ghz o  .  o  o  o  .  o  o  o  o  o  o  o  o
o  .  .  .  .  .  .  .
c221e_1033 No0039   M87 86ghz o  o  o  o  o  o  o  o  o  o  o  o  o  o
o  .  .  .  .  .  .  .
c221e_1034 No0040 3C273 86ghz .  .  o  o  o  .  o  o  o  o  o  o  o  o
o  .  .  .  .  .  .  .
c221e_1035 No0041   M87 86ghz o  o  o  o  o  .  o  o  o  o  o  o  o  o
o  .  .  .  .  .  .  .
c221e_1036 No0043 3C273 86ghz .  .  o  o  o  .  o  o  o  o  o  o  o  o
o  .  .  .  .  .  .  .
c221e_1037 No0044   M87 86ghz o  .  o  o  o  .  o  o  o  o  o  o  o  o
o  x  .  .  .  .  .  .
c221e_1038 No0045 3C273 86ghz .  .  o  .  .  .  o  .  o  o  o  o  o  o
o  o  .  .  .  .  .  .
c221e_1039 No0046   M87 86ghz .  .  o  .  .  .  o  .  o  o  o  o  o  o
o  o  .  .  .  .  .  .
c221e_1040 No0047 3C273 86ghz .  .  .  .  .  .  o  .  o  o  o  o  o  o
o  o  .  .  .  .  .  .
c221e_1041 No0048   M87 86ghz .  .  o  .  .  .  o  .  o  o  o  o  o  o
o  o  .  .  .  .  .  .
c221e_1042 No0049 3C273 86ghz .  .  .  .  .  .  o  .  o  o  o  o  o  o
o  o  .  .  .  .  .  .
c221e_1043 No0050   M87 86ghz .  .  .  .  .  .  o  .  o  o  o  o  o  o
o  o  .  .  .  .  .  .
c221e_1044 No0051 3C273 86ghz .  .  .  .  .  .  o  .  o  o  o  o  o  o
o  o  .  .  .  .  .  .
c221e_1045 No0052   M87 86ghz .  .  .  .  .  .  o  .  o  o  o  o  o  o
o  o  .  .  .  .  .  .
c221e_1046 No0053 3C279 86ghz .  .  .  .  .  .  .  .  o  o  o  o  o  o
o  o  .  .  .  .  .  .
c221e_1047 No0054   M87 86ghz .  .  .  .  .  .  o  .  o  o  o  o  o  o
o  o  .  .  .  .  .  .
c221e_1048 No0055 3C273 86ghz .  .  .  .  .  .  o  .  o  o  o  o  o  o
o  o  .  .  .  .  .  .
c221e_1049 No0056   M87 86ghz .  .  .  .  .  .  o  .  o  o  o  o  o  o
o  o  .  .  .  .  .  .
c221e_1050 No0057 3C273 86ghz .  .  .  .  .  .  o  .  o  o  o  o  o  o
o  o  .  .  .  .  .  .
c221e_1051 No0058   M87 86ghz .  .  .  .  .  .  o  .  o  o  o  o  o  o
o  o  .  .  .  .  .  .
c221e_1052 No0059 3C273 86ghz .  .  .  .  .  .  o  .  o  o  o  o  o  o
o  o  .  .  .  .  .  .
```

```
c221e_1053 No0060   M87 86ghz . . . . . o . o o o o o o
o  o  . . . . . .
c221e_1054 No0061 3C273 86ghz . . . . . o . o o o o o o
o  o  . . . . . .
c221e_1055 No0062   M87 86ghz . . . . . o . o o o o o o
o  o  . . . . . .
c221e_1056 No0063 3C273 86ghz . . . . . . . o o o o o o
o  o  . . . . . .
c221e_1057 No0064   M87 86ghz . . . . . o . o o o o o o
o  o  . . . . . .
c221e_1058 No0065 3C273 86ghz . . . . . . . o o o o o o
o  o  . . . . . .
c221e_1059 No0066   M87 86ghz . . . . . o . o o o o o o
o  o  . . . . . .
c221e_1060 No0067 3C279 86ghz . . . . . . . o o o o o o
o  o  . . . . . .
c221e_1061 No0068   M87 86ghz . . . . . o . o o o o o o
o  o  . . . . . .
c221e_1062 No0069 3C273 86ghz . . . . . . . o o o o o o
o  o  . . . . . .
c221e_1063 No0070   M87 86ghz . . . . . o . o o o o o o
o  o  . . . . . .
c221e_1064 No0071 3C273 86ghz . . . . . . . o o o o o o
o  o  33 o  . . . .
c221e_1065 No0072   M87 86ghz . . . . . o . o o o o o o
o  o  . . . . . .
c221e_1066 No0073 3C273 86ghz . . . . . . . o o o o o o
o  o  o  o  . . . .
c221e_1067 No0074   M87 86ghz . . . . . o . o o o o o o
o  o  o  o  o  o  o
c221e_1068 No0075 3C273 86ghz . . . . . . . o o o o o o
o  o  o  o  . . . .
c221e_1069 No0076   M87 86ghz . . . . . . . o o o o o o
o  o  o  o  o  o  o
c221e_1070 No0077 3C273 86ghz . . . . . . . o o o o o o
o  o  o  o  o  o  o
c221e_1071 No0078   M87 86ghz . . . . . . . o o o o o o
o  o  o  o  o  o  o
c221e_1072 No0079 3C273 86ghz . . . . . . . o o o o o o
o  o  o  o  o  o  o
c221e_1073 No0080   M87 86ghz . . . . . . . o o o o o o
o  o  o  o  o  o  o
c221e_1074 No0081 3C273 86ghz . . . . . . . o o o o o o
o  o  o  o  o  o  o
c221e_1075 No0082   M87 86ghz . . . . . . . o o o o o o
o  o  o  o  o  o  o
c221e_1076 No0083 3C273 86ghz . . . . . . . . o o o o o
o  o  o  o  o  o  o
c221e_1077 No0084   M87 86ghz . . . . . . . o o o o o o
o  o  o  o  o  o  o
```

```
c221e_1078 No0085 3C279 86ghz . . . . . . . . . o o o o o
o  o  o  o  o  o  o
c221e_1079 No0086   M87 86ghz . . . . . . . . . o o o o o
o  o  o  o  o  o  o
c221e_1080 No0087 3C273 86ghz . . . . . . . . . o o o o o
o  o  o  o  o  o  o
c221e_1081 No0088   M87 86ghz . . . . . . . . . o o o o o
o  o  o  o  o  o  o
c221e_1082 No0089 3C273 86ghz . . . . . . . . . o . o o
o  o  o  o  o  o  o
c221e_1083 No0090   M87 86ghz . . . . . . . . . o o o o o
o  o  o  o  o  o  o
c221e_1084 No0091 3C273 86ghz . . . . . . . . . . . o o
o  o  o  o  o  o  o
c221e_1085 No0092   M87 86ghz . . . . . . . . . o o o o
o  o  o  o  o  o  o
c221e_1086 No0093 3C279 86ghz . . . . . . . . . . . . .
.  .  o  o  o  o  o
c221e_1087 No0094   M87 86ghz . . . . . . . . . . . . .
.  .  o  o  o  o  o
c221e_1088 No0095 3C273 86ghz . . . . . . . . . . . . .
.  .  o  o  o  o  o
c221e_1089 No0096   M87 86ghz . . . . . . . . . . . . .
.  .  o  o  o  o  o
c221e_1090 No0097 3C273 86ghz . . . . . . . . . . . . .
.  .  o  o  o  o  o
c221e_1091 No0098   M87 86ghz . . . . . . . . . . . . .
.  .  o  o  o  o  o
c221e_1092 No0099 3C273 86ghz . . . . . . . . . . . . .
.  .  o  o  o  o  o
c221e_1093 No0100   M87 86ghz . . . . . . . . . . . . .
.  .  o  o  o  o  o
c221e_1094 No0101 3C279 86ghz . . . . . . . . . . . . .
.  .  o  o  o  o  o
c221e_1095 No0102   M87 86ghz . . . . . . . . . . . . .
.  .  o  o  o  o  o
c221e_1096 No0103 3C273 86ghz . . . . . . . . . . . . .
.  .  o  o  o  o  o
c221e_1097 No0104   M87 86ghz . . . . . . . . . . . . .
.  .  o  o  o  o  o
c221e_1098 No0105 3C273 86ghz . . . . . . . . . . . . .
.  .  o  o  o  o  o
c221e_1099 No0106   M87 86ghz . . . . . . . . . . . . .
.  .  o  o  o  o  o
c221e_1100 No0107 3C273 86ghz . . . . . . . . . . . . .
.  .  o  o  o  o  o
c221e_1101 No0108   M87 86ghz . . . . . . . . . . . . .
.  .  o  o  o  o  o
c221e_1102 No0109 3C273 86ghz . . . . . . . . . . . . .
.  .  o  o  o  o  o
```

```
c221e_1103 No0110   M87 86ghz .  .  .  .  .  .  .  .  .  .  .  .  .
.  .  o  o  o  o  o
c221e_1104 No0111 3C273 86ghz .  .  .  .  .  .  .  .  .  .  .  .  .
.  .  o  o  o  o  o
c221e_1105 No0112   M87 86ghz .  .  .  .  .  .  .  .  .  .  .  .  .
.  .  o  o  o  o  o
c221e_1106 No0113 3C279 86ghz .  .  .  .  .  .  .  .  .  .  .  .  .
.  .  o  o  o  o  o
c221e_1107 No0114   M87 86ghz .  .  .  .  .  .  .  .  .  .  .  .  .
.  .  o  o  o  o  o
c221e_1108 No0115 3C273 86ghz .  .  .  .  .  .  .  .  .  .  .  .  .
.  .  o  o  o  o  o
c221e_1109 No0116   M87 86ghz .  .  .  .  .  .  .  .  .  .  .  .  .
.  .  o  o  o  o  o
c221e_1110 No0117 3C273 86ghz .  .  .  .  .  .  .  .  .  .  .  .  .
.  .  o  o  o  o  o
c221e_1111 No0118   M87 86ghz .  .  .  .  .  .  .  .  .  .  .  .  .
.  .  o  o  o  o  o
c221e_1112 No0119 3C273 86ghz .  .  .  .  .  .  .  .  .  .  .  .  .
.  .  o  o  o  o  o
c221e_1113 No0120   M87 86ghz .  .  .  .  .  .  .  .  .  .  .  .  .
.  .  o  o  o  o  o
c221e_1114 No0121 3C273 86ghz .  .  .  .  .  .  .  .  .  .  .  .  .
.  .  o  o  o  o  o
c221e_1115 No0122   M87 86ghz .  .  .  .  .  .  .  .  .  .  .  .  .
.  .  o  o  o  53 o
c221e_1116 No0123 3C273 86ghz .  .  .  .  .  .  .  .  .  .  .  .  .
.  .  o  o  o  o  o
c221e_1117 No0124   M87 86ghz .  .  .  .  .  .  .  .  .  .  .  .  .
.  .  o  o  o  o  o
c221e_1118 No0125 3C273 86ghz .  .  .  .  .  .  .  .  .  .  .  .  .
.  .  o  o  o  o  o
c221e_1119 No0126   M87 86ghz .  .  .  .  .  .  .  .  .  .  .  .  .
.  .  o  o  o  o  o
c221e_1120 No0127 3C279 86ghz .  .  .  .  .  .  .  .  .  .  .  .  .
.  .  o  o  o  o  o
Note: ALMA, LMT did not observe
```