

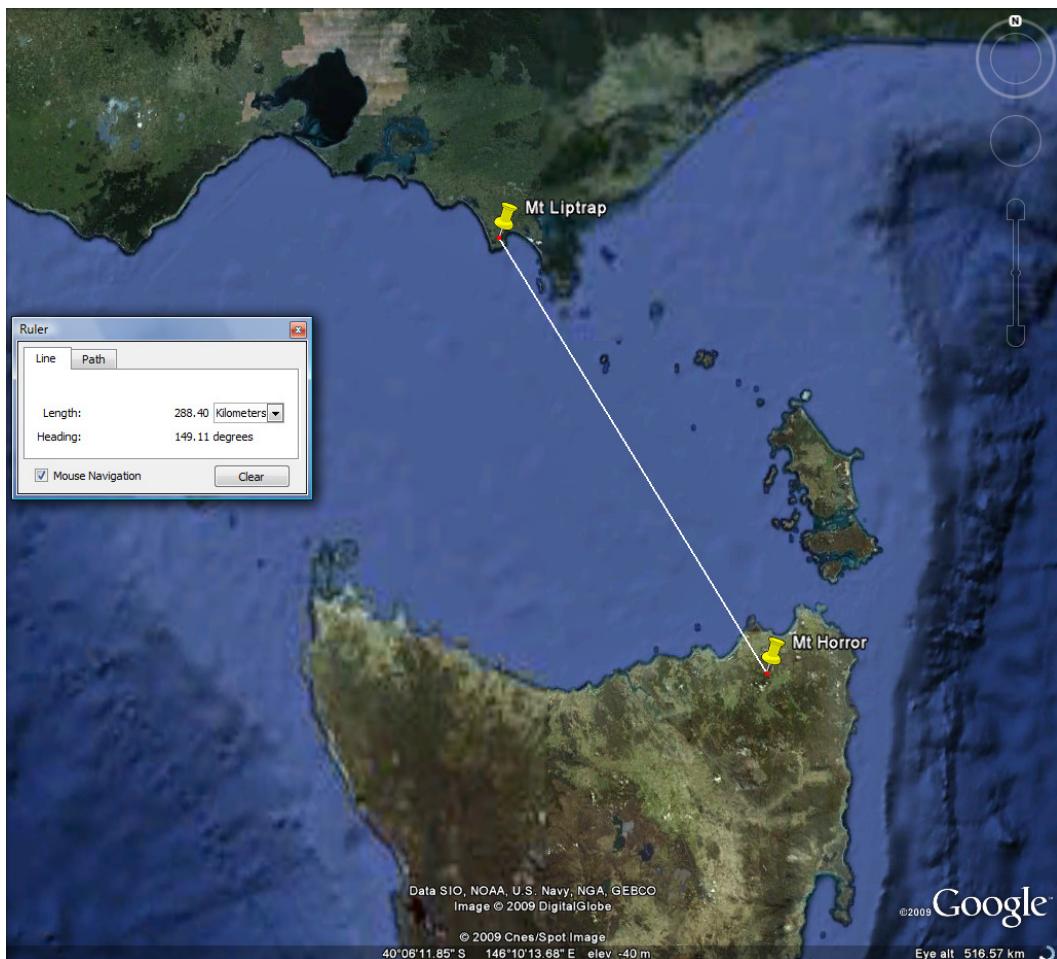
## 288 km Cloudbounce from Tasmania to the Australian Mainland

By Rex Moncur VK7MO, David Smith VK3HZ, Joe Gelston VK7JG and Justin Giles-Clark VK7TW

This successful trial of light communication was based on the 60 Luxeon Fresnel lens transmitter and APD receiver described for the earlier 209 km work. However, in this case a new more sensitive mode called "Weak Signal Communicator" by David Smith VK3HZ which works down to -44 dB on the WSJT scale was used to provide much enhanced sensitivity. Signal levels peaked at -28 dB on the WSJT scale. At the time a brief attempt was made on WSJT but signals were only -30 dB and insufficient to decode. Thus WSC was the essential new element that made this 288 km cloudbounce exercise possible.

A key to the success was to find cloud conditions such that they were sufficiently high to be in line of sight of both ends but not obstructed by lower level clouds. At it eventuated the successful result was achieved with very high level (7000 metres) and thin cirrus clouds.

### Location



The successful trial was conducted by transmitting from Mt Horror at around 660 metres to Mt Liptrap at around 150 metres over a distance of 288 km. Initially the receiving site was located a little further inland at Mt Fatigue at around 580 meters which would have assisted by reducing the extinction loss which reduces with altitude and also allowed the use of slightly lower clouds. However, tests at Mt Fatigue showed that the receiver noise floor was increased from the typical dark current of 13 nano-amps to around 150 nano-amps costing over 10 dB in system performance. The source of the additional noise appeared to be a distant shipping terminal which was outside the beam but it is suspected that the plastic Fresnel RX lens might have side-lobes due the way they are constructed. An attempt was made to shield the direct light and while this did reduce the noise current to 80 nano-amps it seemed that a still significant amount of light from the shipping terminal was also being scattered from the clouds. Accordingly, it was decided that it was necessary to find a location with no light in the direction of propagation which meant no towns or even farm houses. At the same time it seemed preferable to have at least some elevation to get above sea mist. The Mt Liptrap site, hardly a mountain at 150 meters, had the advantage that the direction of propagation was over a few km of national park with rough scrub with no sources of light and then clear over the water. It was also possible to operate with the receiver on the roof of the car and get a clear view over the scrub as shown below:



## **WSC mode**

WSC is built on the Spectrum Lab program by Wolf DL4YHF which is used to generate the transmitted frequencies and to detect the received tones in very narrow bandwidths of around a milli-Hertz (mHz) or so.

The WSC mode is based on sending an accurate tone that represents the first or second half of a callsign. For the second half of a callsign such as the ABC in VK7ABC one needs 26x27x27 options or almost 19,000 possible tones. If as in the case of these trials we use a binwidth of about 4 mHz then this requires a total bandwidth of around 80 Hz. These tones are sent from 1000 to around 1080 Hz. The program makes provision to send tones in the 80 Hz below a 1000 Hz where information such as signal reports and confirmation can be sent – these include a checksum value related to the callsigns so one can be sure that it is still the same station who is working you and responding.

Detailed information on the use of WSC is at Attachment A.

With a binwidth of 3.8 mHz it has been found that WSC decodes reliably at -44 dB on the WSJT scale at the expense of taking 20 minutes to send two callsigns. A complete QSO is possible in a little over an hour. WSC can be set to just less than 1 mHz bin-width in which case it achieves reliable decoding down to -50 dB but would take around 5 hours to complete a QSO.

## **Sound Card Stability**

In earlier computer to computer bench testing of WSC we found that the sound card accuracy and stability were insufficient to provide certainty of decoding with bin-widths around a mHz. The solution adopted was to use a GPS frequency source to lock the sound card clock frequency. We used the Signal Link external USB soundcard which is readily operated with a Laptop computer via a USB port. The Signal Link sound card requires a 12 MHz clock frequency which can be derived from a 10 MHz GPS locked source by dividing by 5 and multiplying by 6. A circuit to do this is at Attachment B which also shows how to connect to the 12 MHz GPS locked frequency to the Signal Link sound-card.

## **Transmitter**

Attachment C shows the circuit diagram of the modulator used to drive the 60 Luxeon array for these tests together with a photograph of the array mounted at Mt Horror.

## **Receiver**

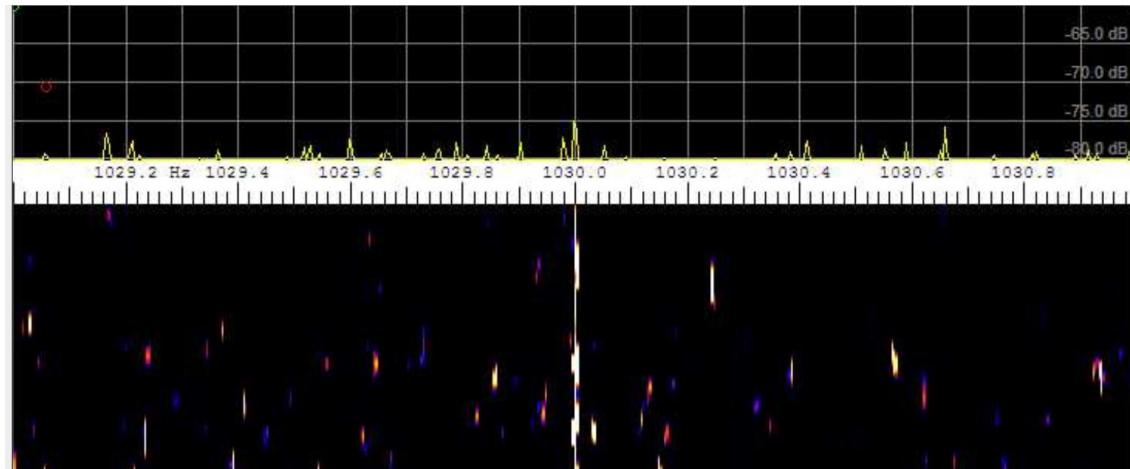
Attachment D shows the circuit diagram of the receiver used for these tests which is based on the KA7OEI circuit. It was found that at such low bin-widths the noise level was so low that a birdie which we believe is generated within the Signal Link sound card at around -88 dB right on 1000 Hz was of the same order as a weak signal. To overcome this it was necessary to increase the gain of the receiver by 20 dB by changing the differentiator feedback network around the output operational amplifier from R= 47k to 330k and C=377 pf to 47 pf (such provision was provided in the original KA7OEI circuit). As it turned out this was still not quite enough gain when the noise was lower at the Mt Liptrap site and it was necessary to provide a further 20 dB gain audio preamp between the receiver and the computer input.

## Conditions

A critical element to achieve long distance cloud scatter is that one needs clouds high enough to be line of sight from both ends and then no low level clouds that can obstruct the path. On our first attempt the situation looked good right up to nightfall when fog rolled in at Mt Horror and nothing was detected<sup>1</sup>. After consulting the Bureau of Metrology it took some 10 days before they were able to forecast high clouds with dry air beneath and this produced the successful result.

## Results

As darkness fell Joe commenced transmitting a single tone on 1030 Hz to see if anything could be detected. Only occasionally did a correct decode occur which can be seen as highlighted in green as within 2 mHz of 1030 Hz under the frequency column at Attachment E. By focussing the waterfall display on Spectrum Lab just one Hz plus and minus of 1030 Hz it was possible to detect evidence of the signal at 1030 Hz as shown below.



It is noted that while the 1030 Hz signal is present most of the time there is evidence of strong additional tones that look like noise but seem to be concentrated around the actual tone frequency. It was in fact these stronger tones that were sufficiently strong for WSC to decode the correct frequency. We wondered if these stronger tones might be due to small clouds causing Doppler but based on very fast clouds calculations show the Doppler would be a fraction of a mHz so this does not explain them.

After an hour of watching this very marginal evidence of a signal Joe was asked to send callsigns and the results can be seen after 21:30 at Attachment E. While the information VK7, MO and JG were all copied the results were far from convincing and Joe suggested that he beam up a little to see what happened. Almost immediately signals increased and after finding the optimum elevation angle (around 2 degrees) at the TX end decoding was rock solid - optimising elevation at the RX end increased signal to noise ratio to 28 dB as shown at the end of Attachment E.

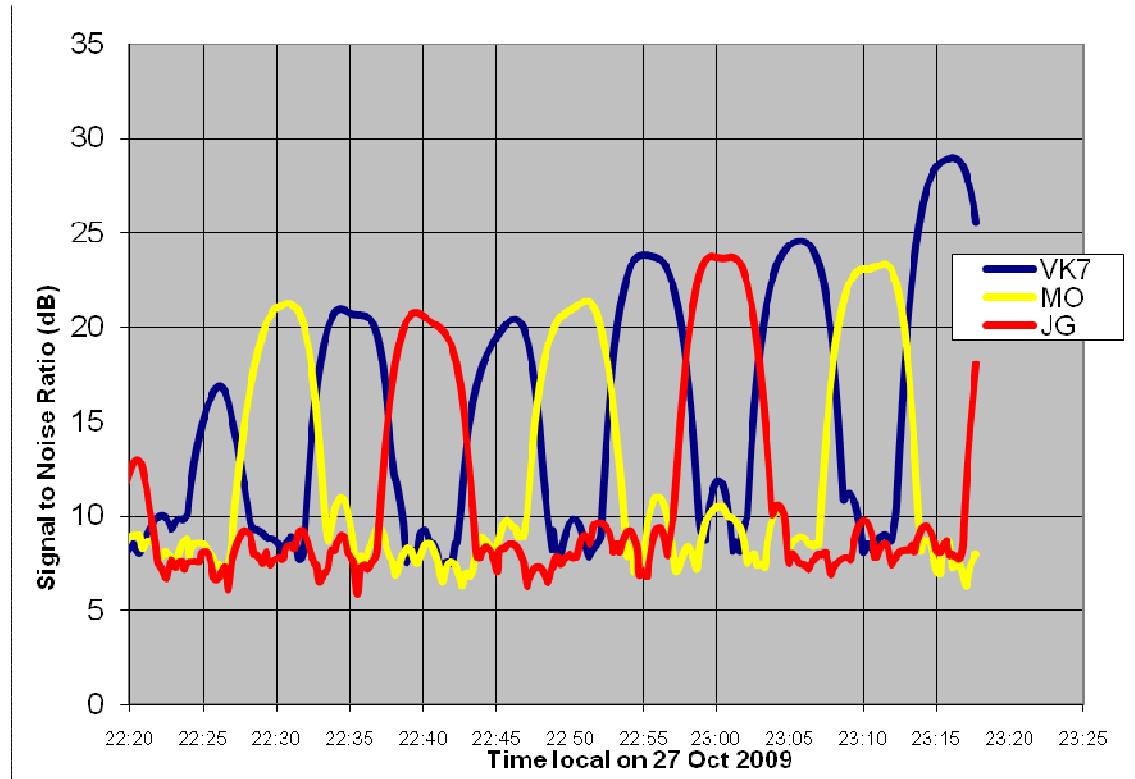
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<sup>1</sup> Youtube video of the first attempt can be found at: <http://www.youtube.com/watch?v=vu-5KNViNO4>

The following is a simplified segment of the WSC output when decoding VK7JG:

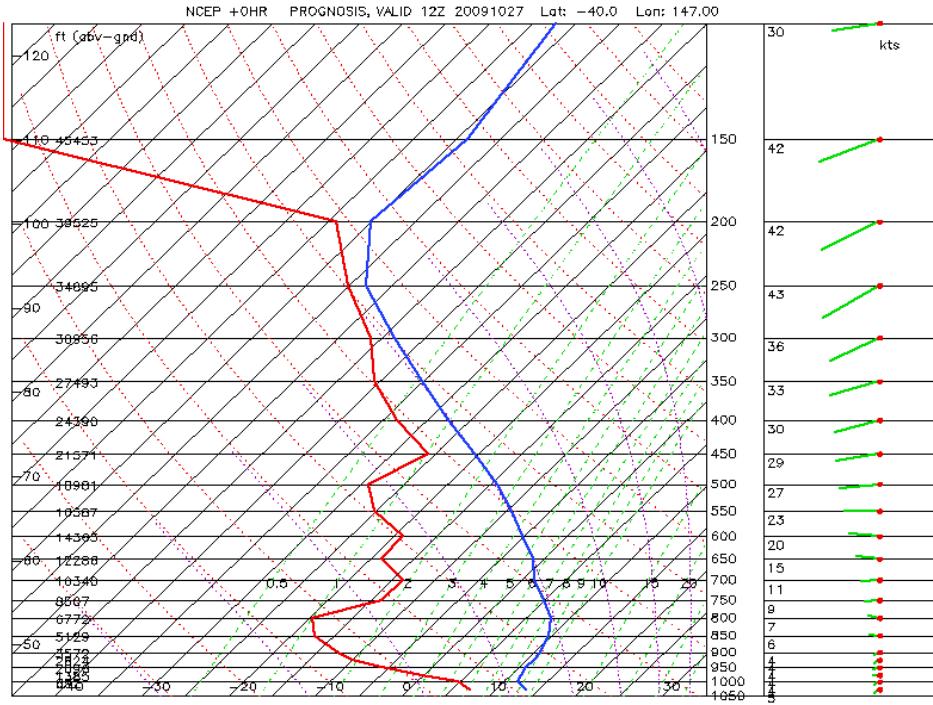
Time	Freq	S/N	MsgA	MsgB
23:02:01	1038.509	21.5	VK7	
23:02:11	1038.509	20.9	VK7	
23:02:21	1038.508	20.1	VK7	
23:02:31	1038.508	19.2	VK7	
23:02:41	1038.508	18.2	VK7	
23:02:51	1072.957	19.1		JG~
23:03:01	1072.957	20.1		JG~
23:03:11	1072.955	20.9		JG~
23:03:21	1072.955	21.6		JG~
23:03:31	1072.955	22.1		JG~

It is possible to use Spectrum Lab to record the actual signal to noise ratio of each tone and see how they build up and decay over each 5 minute TX period as shown below:



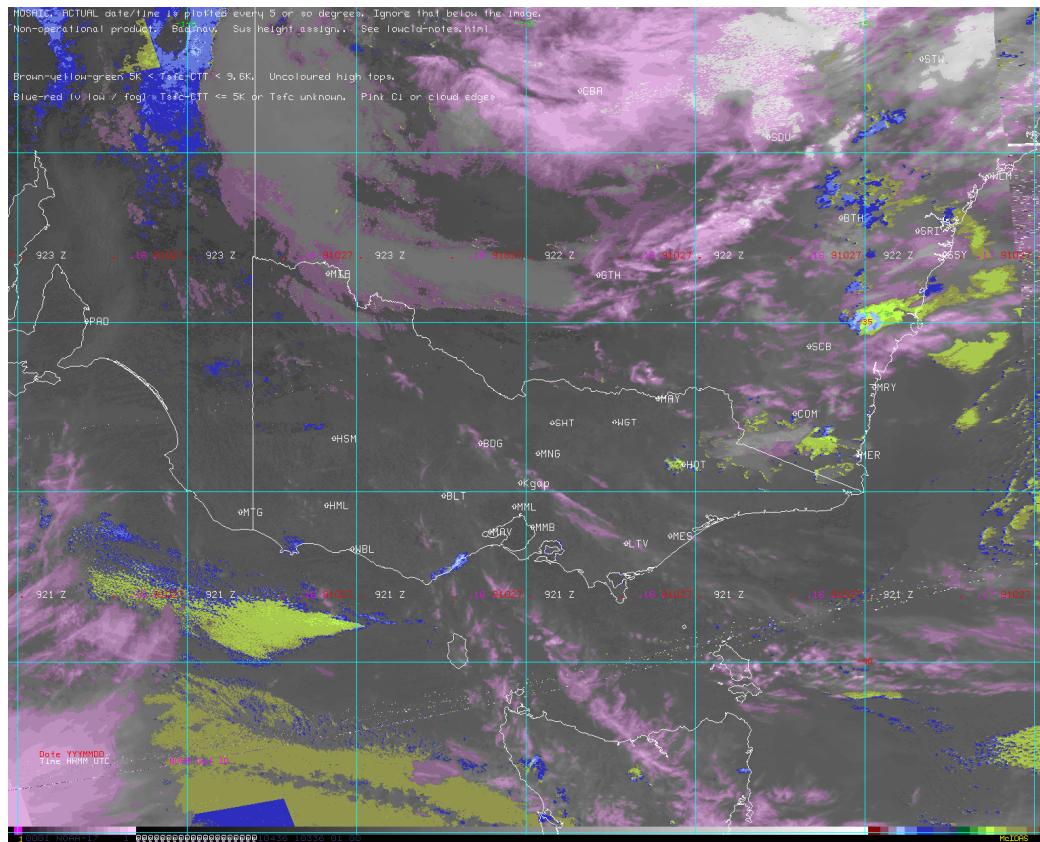
#### Post Meteorological Analysis

Brendan McMahon of the Bureau of Meteorology Launceston office kindly produced an excellent analysis of the meteorological situation that resulted in the successful trial. Below is the modelled air temperature (Blue) and dew point (Red) from a US global circulation model. It shows that there is generally very dry air at low levels but around 21,000 feet or 7000 metres the dew point rises sharply which Brendan advises would indicate the presence of cirrus clouds which would be in the form of ice. The fact that the clouds were as high as 7000 meters explains why it was necessary to beam up around 2 degrees at both ends to optimise the signal levels.

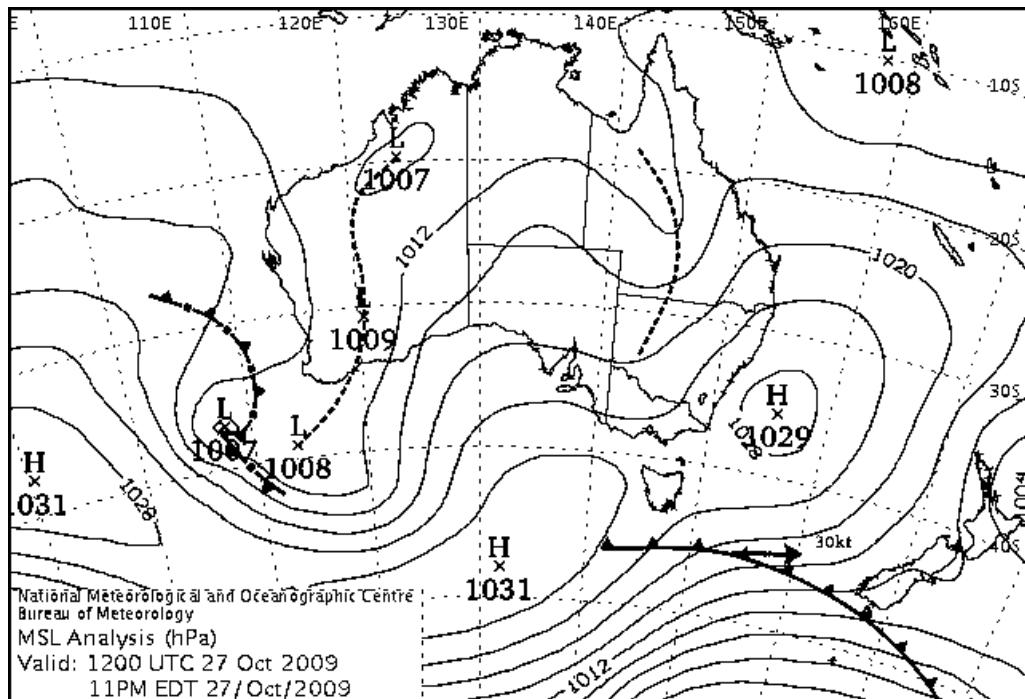


Up to the time of the trial we had not thought the very thin cirrus clouds would support useful propagation and even during the trial it was possible to clearly see the moon and stars down to around 15 degrees indicating very thin cloud. It seems, however, that at low elevations there is still sufficient depth of cloud in the almost horizontal plane of propagation for the bulk of the energy to be scattered.

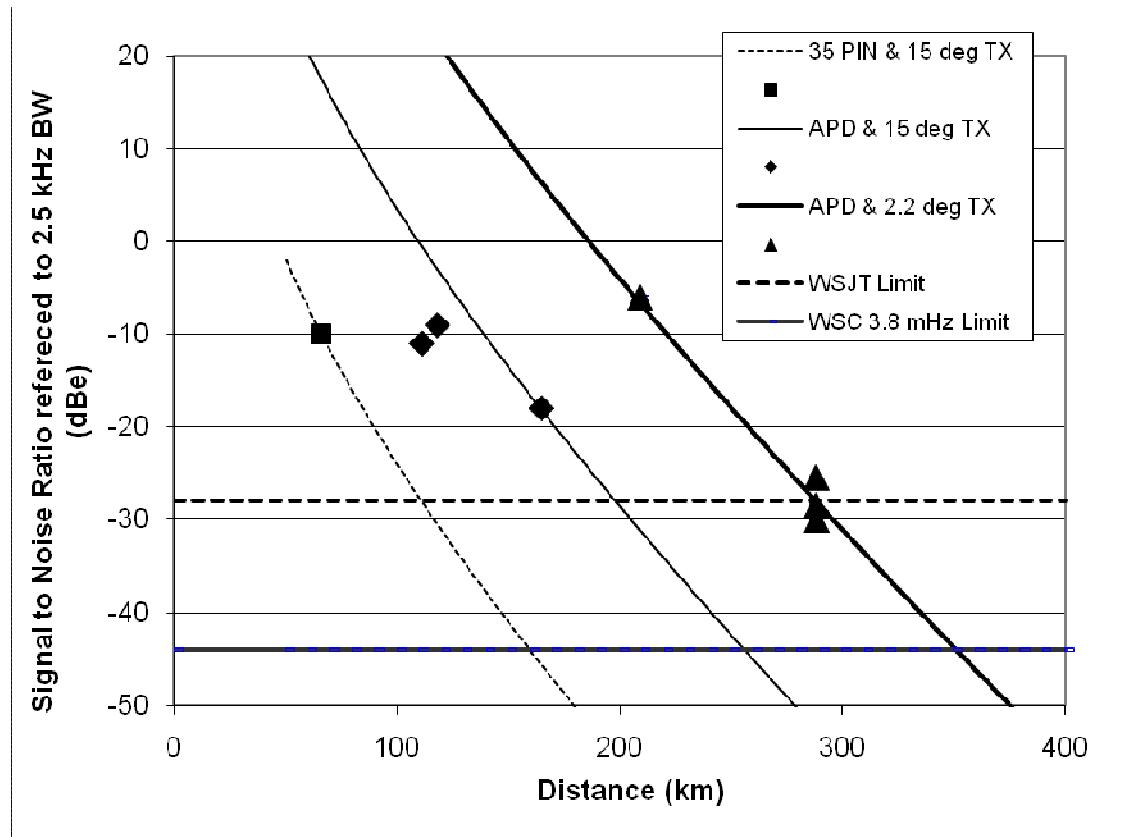
The next diagram is a satellite photo provided by Brendan that shows the cloud situation at the start of the trial. There is a band of high level and thus cold cloud shown as mauve just to the left of the path of propagation and it seems this was the cloud that produced the successful result.



The surface chart at the time was as below. This perhaps gives some idea of the situation one must look for in planning long distance cloud scatter.



## Comparing Results with Propagation Model



The above graph comes from an earlier report on our optical work in DUBUS volume 1/2009 by Paul Edwards VK7ZAS and Rex Moncur VK7MO. In this version we have added three additional data points for the current 288 km trial as follows:

- -30 dB which was the best signal recorded with WSJT but for a limited period of only 3 attempts
- -28.4 dB which is the best result obtained with WSC with the signal to noise ratio converted to WSJT's 2.5 kHz reference bandwidth
- -25.4 dB which adds 3 dB to the previous value to correct for the fact that in this case the signal to noise ratio was being degraded by 3 dB by the presence of light from a half moon which was clearly visible and would have been scattering light from the cloud. The other results plotted on this graph were at times when the moon was not above the horizon.

The curves on the above graph derive from a model that was developed in the DUBUS article and the new data gives very good support for the model. In a sense this is surprising as the model takes no account of the reduction of extinction loss with height or the reduction of scatter gain with increased scatter angle which also increases with height – thus suggesting that these contrary factors have compensated. The model would suggest that with the present equipment and the WSC mode at 3.8 mHz binwidth it should be possible to work out to around 350 km.

## **Conclusions**

- Optical cloudbounce propagation has now been demonstrated out to a distance of 288 km and modelling suggests that the present equipment should allow propagation up to 350 km.
- For the first time it has been established that propagation can be supported by thin high level cirrus clouds
- A practical factor in using high level clouds is to have information on cloud height to set the elevation angles of the TX and RX.
- While much more information is required on the meteorological conditions necessary to support long distance cloudbounce propagation it is at least necessary to have high level clouds with dry air beneath.
- The propagation modelling outlined in DUBUS volume 1/2009 seems to hold for high cirrus clouds despite the fact that the scatter gain should be lower due to higher scatter angles the clouds are ice rather than rain drops and the physical size of the scattering drops/ice crystal may be different and the clouds appear to optically very thin.
- The use of the WSC mode which works to -44 dB was a key to this success.

## **Acknowledgements**

Brendan McMahon and David James of the Bureau of Meteorology for support with weather assessments and particularly Brendon for his post trial assessment. Paul VK7KPG who assisted Joe at the transmitter end.

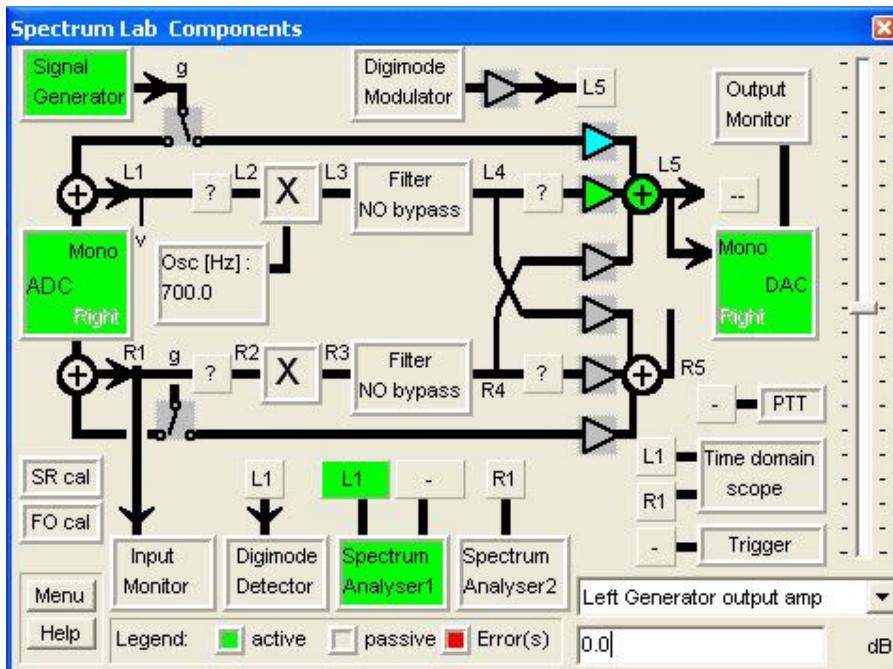
## **Further Information**

More detailed information on the development of the equipment for this work and the theory which underlies the propagation model can be found in a series of articles in DUBUS volumes 4/2008 and 1/2/3 of 2009 by Rex Moncur, VK7MO, Justin Giles-Clark VK7TW and Paul Edwards VK7ZAS.

## Weak Signal Communicator

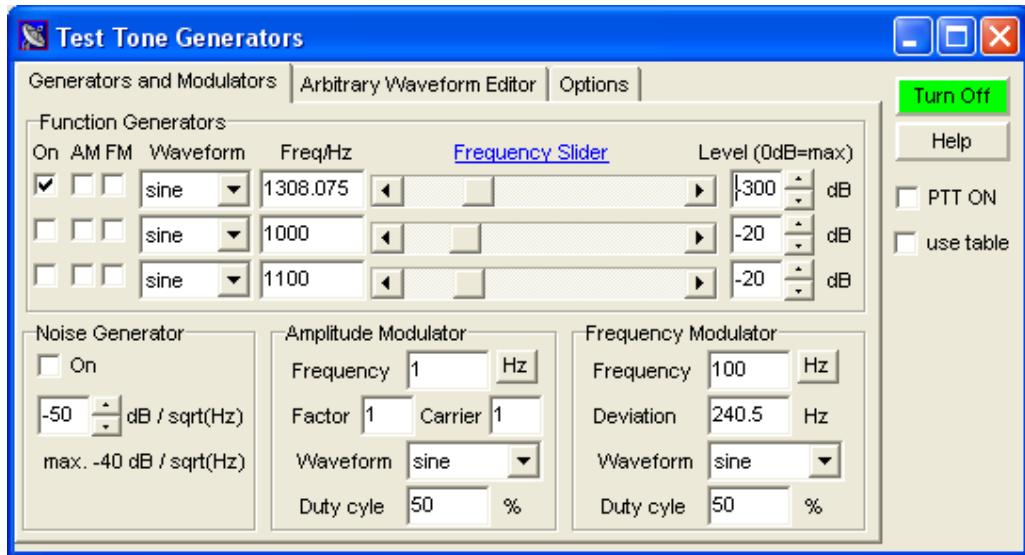
### Setup

1. These files make up WSC and should be in the Spectrum Lab server-pages directory (normally C:\Program Files\SpectrumLab\server\_pages):
  - wsc.html
  - crc.js
  - comms.js
2. Start Spectrum Lab
3. Enable the Web Server function. Click on **Options -> Configure & supervise HTTP Server** and click on the **enable HTTP Server** check box.
4. Click on **View/Windows -> Spectrum Lab Components (circuit window)** to get the following view:



5. Click on the grey box (g) on the output of the Signal Generator to route the Sig Gen to the output (if not already).

- Click on the Signal Generator box to produce the following menu:



- Click the **On** check box at top left to select generator [0]. Click the **Turn On** button at the top right (which will turn green and display "Turn Off") to turn the sig gen on. Make sure the AM & FM check boxes are not checked and the Waveform is sine.

## Operation

- In SL, set the FFT & Audio settings as required.
- In SL, ensure the **FFT Type** is set to **Complex with Internal Frequency Shift** and **Centre Frequency** is set to **1000 Hz** exactly.
- Open a new browser window (in Internet Exploder (if you must), it's Ctrl-N)
- For web site address, type **127.0.0.1/wsc.html** You should see a screen like that below:

# Weak Signal Communicator

Base Freq : 1000 Hz Bin Size : 10.51mHz

To : VK7MO From : VK7JG Chk Tx: 3C Chk Rx: 64

Report :  19  Report Mode

Duration : 30 sec Tx First  Start Now

Status : Sending Report [19] - Check [3C] - 28s left  Start

Time	Freq	S/N	Msg	Chk Report

Average (Count = 0)

Reset

Done



5. The top line is for information only – these values should match those in Spectrum Lab.
6. **Chk Tx** is the CRC8 checksum of the two callsigns in To+From order that is transmitted with the report. **Chk Rx** is the checksum in the From+To order and should be the same as that received from the other station.
7. The **Report** is a pull-down list with values 1-19 and R. If you click on the blank button to the left of the list, it will change to R. Using these two, a report of 1-19, R1-R19 and RR can be created.

8. The **Report Mode** check box changes the program from sending and receiving sequences of 4 messages making up the pair of callsigns, to sending and receiving one message containing a report. If the box is checked while the program is sending/receiving callsigns, it will wait until the end of the sequence of 4 messages before changing to Report mode.
9. **Duration** sets the length of one message transmission. To send a pair of callsigns, a time of 4 x Duration is required. On Receive, the program waits for 1/3 of the duration before displaying results to allow the FFT buffer to fill and SL to start giving meaningful output.
10. **Tx First** causes the program to transmit in the first sequence – either callsigns or a report.
11. **Start Now** was initially added as a Debug aid, but seems useful anyway. If the box is not checked, the program waits for the next minute changeover before starting to Receive or Transmit.
12. The **Status** line shows what is currently happening, and how long to go.
13. The **Start** button starts/stops the program. If operation is stopped then started again, the program reverts back to the start but the old results are not cleared. If you want to do a fresh start, click the Refresh button on the browser.
14. The results box shows the decoded messages. Calls are decoded according to which half of the callsign is currently expected. If a report is received during callsign decoding (i.e. freq < 1000 Hz), it will be decoded correctly and shown in a different column. However, if a callsign (freq >= 1000Hz) is received when a report is expected, “???” is written in the call area as we don’t know which half of the callsign is being sent.
15. The **Average** area builds up a complete received message from the averages of the received frequencies.

## **Notes**

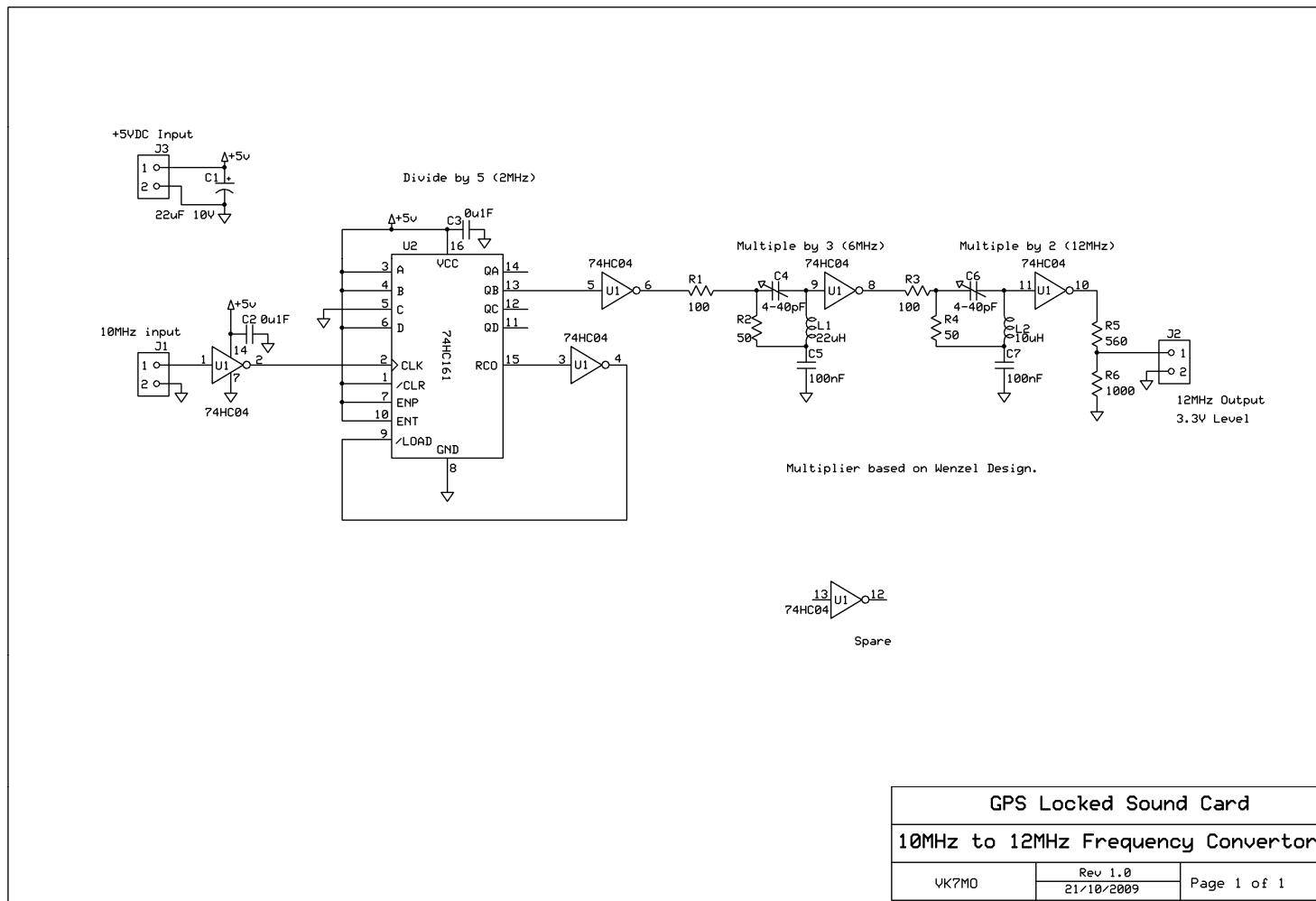
1. This is a very Beta (Alpha!) version – expect the unexpected!
2. There is a minor bug where the last 10-second decode for the last receive sequence (i.e. 4<sup>th</sup> message for callsigns, every Report) is not always processed.
3. The character ~ is used to indicate a space in the message.

4. Callsign checks consist only of looking for a number in either character position 2 or 3.

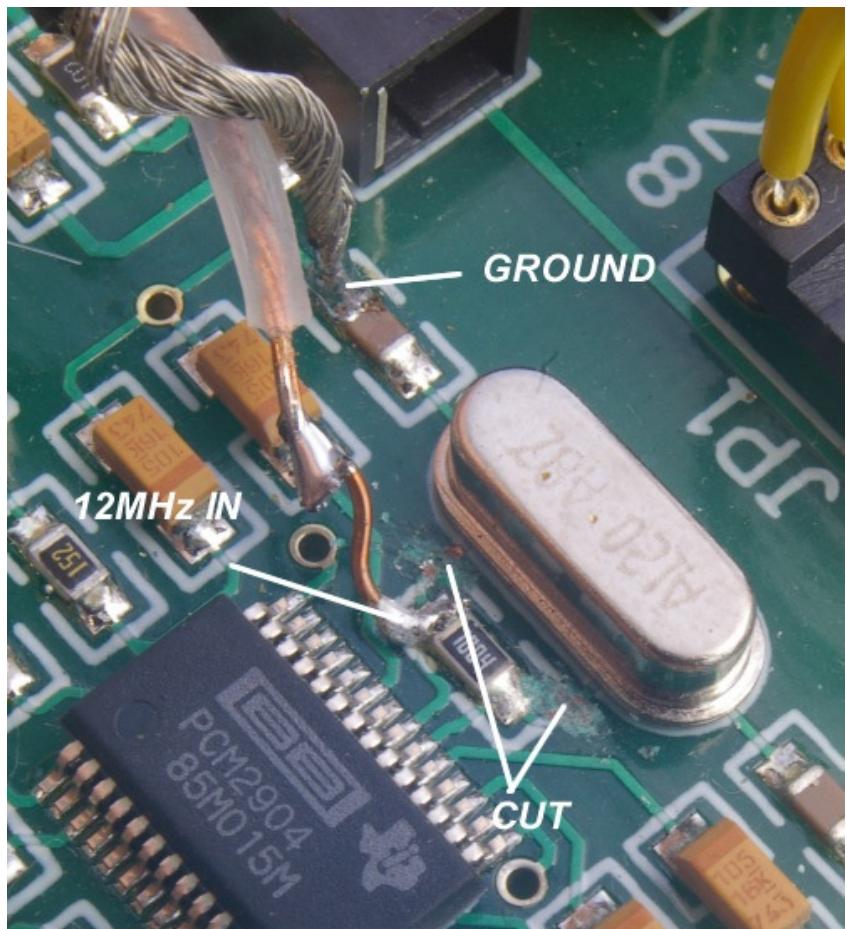
5. Frequency is calculated as follows:

- For the first half callsign (A):
  - The transmitted value is worked out from the character position in the sequence 0-9, A-Z and Space. So, for example, 0 has value 0, A has value 10 and Space has value 36.
  - For the three character message, the Tx Value is:  
$$\text{Char1} + 37x (\text{Char2} + 36x(\text{Char3}))$$
- For the second half callsign (B):
  - The transmitted value is worked out from the character position in the sequence A-Z and Space. So, for example, A has value 0 and Space has value 26.
  - For the three character message, the Tx Value is:  
$$\text{Char1} + 27x (\text{Char2} + 27x(\text{Char3}))$$
- For the Report:
  - The report is given a value of 1-19 or 20 for “R” plus another 20 for the preceding “R”. So, “R8” is  $20 + 8 = 28$ , “RR” = 40.
  - The Tx Value is  $-1 \times ((\text{Report Value} * 256) + \text{Chk Tx} + 1)$ . So, a report frequency will always be below the Base Frequency.
- The Tx Freq is  $\text{Base Freq} + (\text{Bin Size} \times \text{Tx Value})$

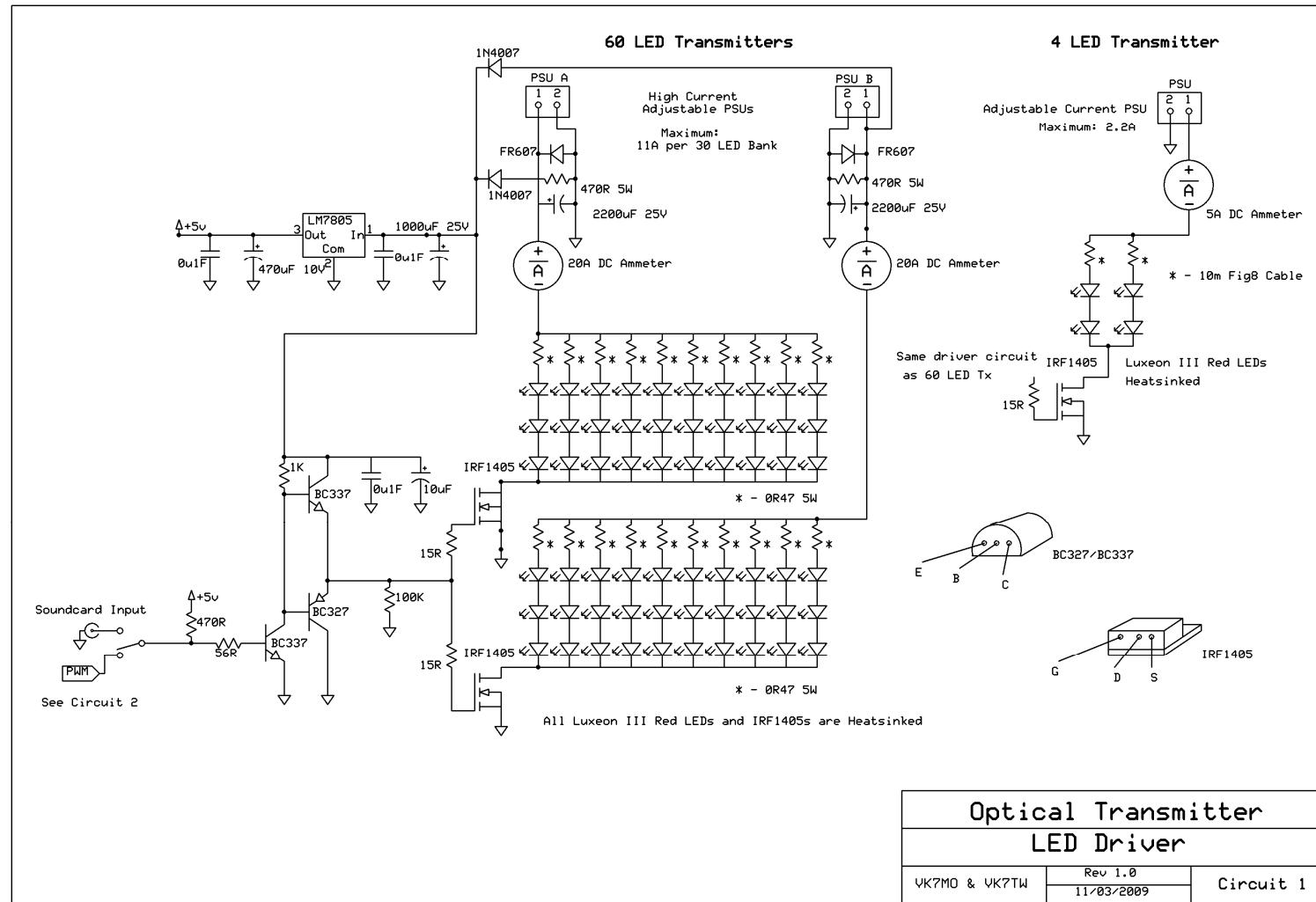
Attachment B – Frequency Convertor Schematic – 10 to 12 MHz for GPS Locked Sound Card



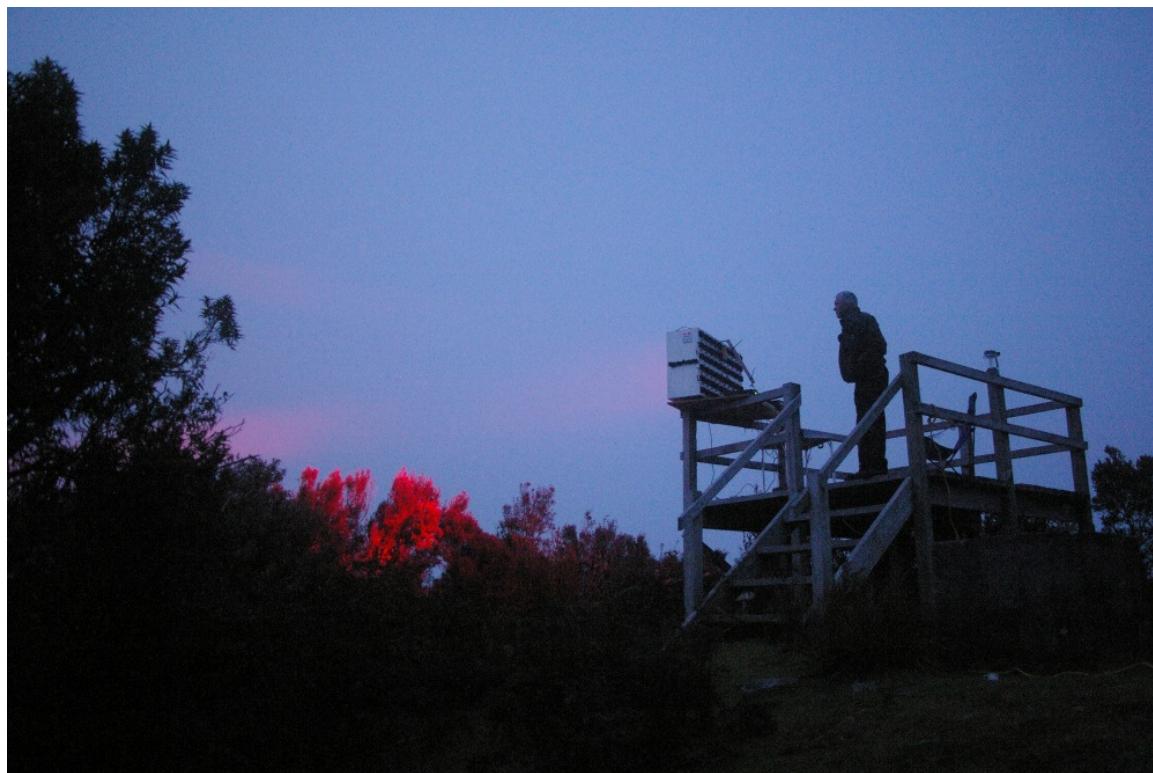
SignalLink Sound Card Modifications:



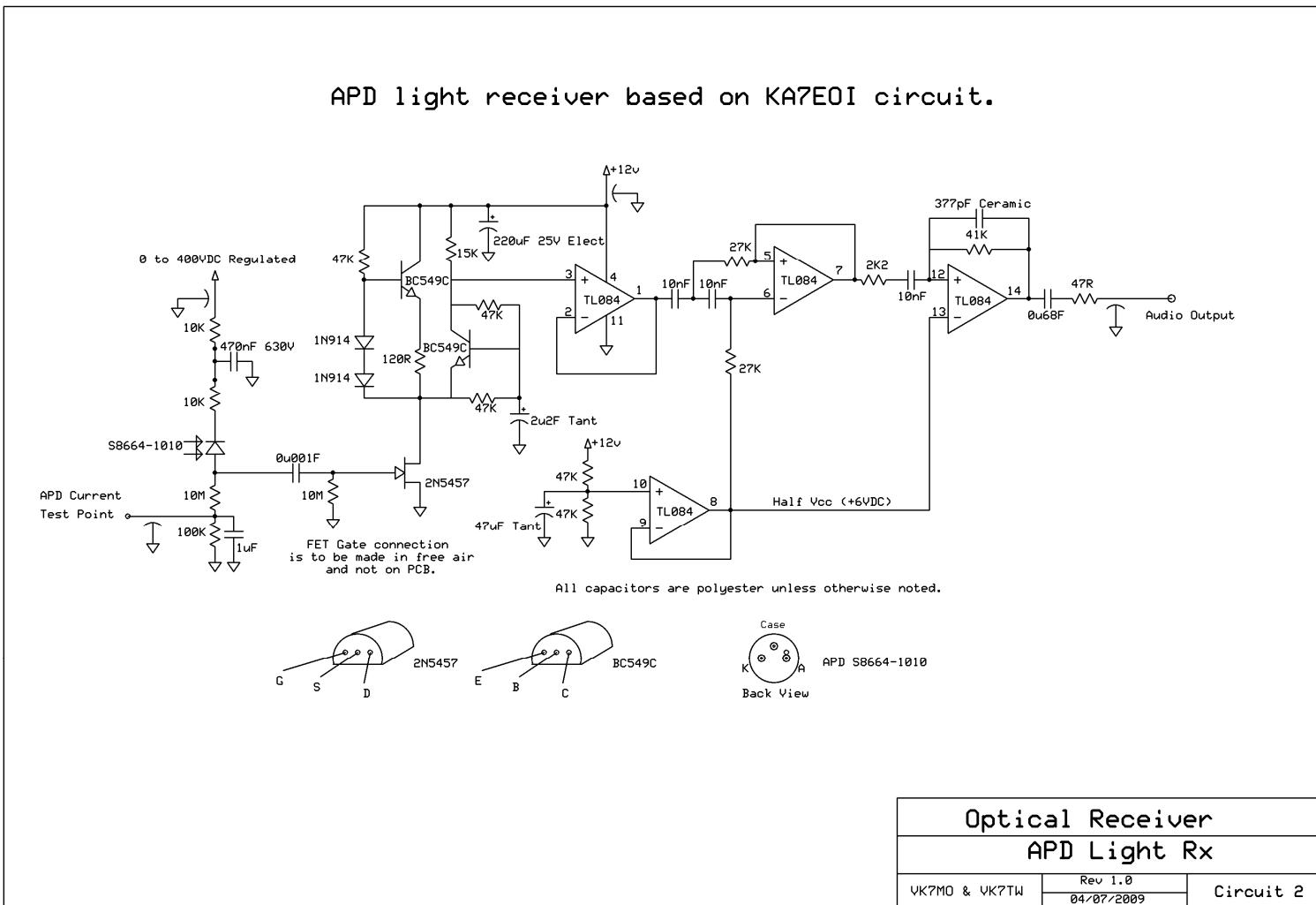
Attachment C – Transmitter Schematic



Mt Horror Transmitter Equipment with Joe VK7JG at Dusk.



Attachment D – APD Receiver Schematic



Attachment E – WSC Output during Bass Strait trial

Please note correct decoding is indicated by highlighting.

Time	Freq	S/N	MsgA	MsgB	Freq	S/N	Chk	Report
20:30:05	1022.817	11.1	OH4	OFI	973.334	9.81	4D	R7
20:30:15	1022.817	10.8	OH4	OFI	993.594	9.59	8E	6
20:30:25	1046.961	11	R89	~XQ	993.595	9.36	8E	6
20:30:35	1046.961	10.9	R89	~XQ	993.595	9.12	8E	6
20:30:45	1024.577	10.2	5U4	RWI	991.498	9.79	B4	8
20:30:55	1024.579	10.3	5U4	RWI	991.498	10.2	B4	8
20:31:05	1024.579	10.2	5U4	RWI	991.498	10.5	B4	8
20:31:15	1059.844	10.3	OSB	BOV	991.498	10.6	B4	8
20:31:25	1059.844	10.2	OSB	BOV	991.498	10.6	B4	8
20:31:35	1061.317	9.56	G2C	JBW	991.498	10.5	B4	8
20:31:45	1031.857	9.64	Q96	IML	964.099	10.9	C2	R16
20:31:55	1050.985	11	9A	AJS	964.099	10.9	C2	R16
20:32:05	1050.986	11	10A	BJS	964.098	10.9	C2	R16
20:32:15	1040.606	11.1	QZ7	HQO	964.098	10.6	C2	R16
20:32:25	1040.606	11.3	QZ7	HQO	978.247	10.7	45	R2
20:32:35	1040.606	11.3	QZ7	HQO	978.247	10.5	45	R2
20:32:45	1045.566	10.9	VY8	LKQ	993.685	10	76	6
20:32:55	1045.568	11.1	VY8	LKQ	993.685	10.5	76	6
20:33:05	1045.568	11.2	VY8	LKQ	993.685	10.8	76	6
20:33:15	1000.548	11	X30	JFA	993.685	11	76	6
20:33:25	1000.548	11.1	X30	JFA	993.685	10.9	76	6
20:33:35	1000.548	11	X30	JFA	993.686	10.6	76	6
20:33:45	1041.48	11.4	X58	UYO	993.686	10.1	76	6
20:33:55	1041.48	11.5	X58	UYO	993.688	9.75	76	6
20:34:05	1041.48	11.5	X58	UYO	965.701	9.89	1E	R15
20:34:16	1041.48	11.3	X58	UYO	965.701	9.83	1E	R15
20:34:26	1025.739	11.4	D25	YGJ	965.701	9.67	1E	R15
20:34:36	1025.739	11.3	D25	YGJ	965.701	9.37	1E	R15
20:34:46	1028.451	10.6	LL5	GGK	966.025	9.73	C9	R14
20:34:56	1028.451	10.7	LL5	GGK	966.025	9.7	C9	R14
20:35:06	1019.601	11	WU3	IBH	966.027	9.65	C9	R14
20:35:16	1019.601	11	WU3	IBH	966.027	9.83	C9	R14
20:35:26	1019.601	10.8	WU3	IBH	983.756	10.2	A1	16
20:35:36	1019.601	10.4	WU3	IBH	983.756	9.97	A1	16
20:35:46	1030	9.88	KW5	HVK	981.054	9.76	66	19
20:35:56	1063.041	9.75	OEC	CSW	961.202	9.62	BA	R19
20:36:06	1063.041	10.2	OEC	CSW	961.202	9.48	BA	R19
20:36:16	1063.041	10.6	OEC	CSW	963.429	9.14	72	R17
20:36:26	1036.245	10.9	T47	YAN	963.429	9.22	72	R17
20:36:36	1036.244	11.2	T47	YAN	996.534	10.1	8C	3
20:36:46	1036.244	11.4	T47	YAN	996.534	10.6	8C	3
20:36:56	1036.245	11.4	T47	YAN	996.534	10.9	8C	3
20:37:06	1036.245	11.2	T47	YAN	996.538	11	8B	3
20:37:16	1069.35	11.3	DND	JZY	996.538	11.2	8B	3
20:37:26	1069.35	11.4	DND	JZY	996.538	11.2	8B	3
20:37:36	1069.35	11.3	DND	JZY	996.538	10.9	8B	3
20:37:46	1069.35	11.1	DND	JZY	996.538	10.6	8B	3
20:37:56	1069.35	10.7	DND	JZY	983.855	10.9	87	16
20:38:06	1052.568	10.7	GCA	KYS	983.855	11.2	87	16
20:38:16	1014.024	10.4	DR2	EBF	990.744	11.2	79	9
20:38:26	1014.021	10.6	DR2	EBF	990.744	11.5	79	9
20:38:36	1014.021	10.8	DR2	EBF	990.747	11.7	79	9
20:38:46	1014.021	10.9	DR2	EBF	990.747	11.7	79	9
20:38:56	1065.042	10.6	USC	NKX	990.747	11.5	79	9
20:39:06	1065.042	10.4	USC	NKX	990.747	11	79	9
20:39:17	1069.212	11.1	EMD	AYY	972.239	10.4	6C	R8
20:39:27	1069.212	11.6	EMD	AYY	972.239	10.4	6C	R8
20:39:37	1069.212	11.8	EMD	AYY	992.323	10.7	DB	7
20:39:47	1069.212	11.8	EMD	AYY	998.839	10.8	2F	1
20:39:57	1069.212	11.6	EMD	AYY	998.839	10.6	2F	1
20:40:07	1069.212	11.2	EMD	AYY	998.839	10.3	2F	1
20:40:17	1045.877	11	LNQ		998.84	9.9	2F	1
20:40:27	1045.877	11	LNQ		975.11	9.64	7C	R5
20:40:37	1045.874	11.2	LNQ		975.499	9.5	16	R5
20:40:47	1045.874	11.2	LNQ		975.499	9.95	16	R5

20:40:57	1062.788	10.9	VCC	QPW	962.787	9.91	1A	R18
20:41:07	1062.789	11	WCC	RPW	962.787	9.9	1A	R18
20:41:17	1062.789	10.9	WCC	RPW	963.11	11.1	C5	R17
20:41:27	1062.789	10.6	WCC	RPW	963.11	11.3	C5	R17
20:41:37	1043.352	11.2	5J8	YPP	987.63	10.9	AA	12
20:41:47	1043.352	11.5	5J8	YPP	987.631	11.1	A9	12
20:41:57	1043.352	11.5	5J8	YPP	987.631	11.1	A9	12
20:42:07	1043.352	11.4	5J8	YPP	987.631	10.9	A9	12
20:42:17	1043.353	11.2	6J8	ZPP	994.855	10.6	44	5
20:42:27	1043.353	10.7	6J8	ZPP	994.855	10.6	44	5
20:42:37	1043.353	10.2	6J8	ZPP	994.855	10.4	44	5
20:42:47	1062.691	9.95	6CC	SOW	971.168	9.73	85	R9
20:42:57	1041.124	11.4	D38	HVO	971.167	10.1	85	R9
20:43:07	1041.124	11.7	D38	HVO	971.333	10.4	5A	R9
20:43:17	1041.124	11.8	D38	HVO	971.334	10.9	5A	R9
20:43:27	1041.124	11.8	D38	HVO	971.334	11.3	5A	R9
20:43:37	1041.124	11.7	D38	HVO	971.334	11.5	5A	R9
20:43:47	1041.124	11.3	D38	HVO	971.334	11.5	5A	R9
20:43:57	1025.804	11.1	U25	OHJ	971.334	11.3	5A	R9
20:44:07	1025.804	11.6	U25	OHJ	971.334	11	5A	R9
20:44:17	1025.804	11.9	U25	OHJ	971.334	10.5	5A	R9
20:44:27	1025.804	12	U25	OHJ	990.43	10.3	CC	9
20:44:37	1025.804	12	U25	OHJ	990.43	10.4	CC	9
20:44:47	1025.804	11.9	U25	OHJ	983.534	10.6	DB	16
20:44:57	1039.062	10.9	S07	HBO	983.534	10.6	DB	16
20:45:07	1039.063	10.6	S07	HBO	983.534	10.4	DB	16
20:45:17	1030	10.2	KW5	HVK	976.916	9.64	A2	R3
20:45:27	1030	10.1	KW5	HVK	976.916	9.7	A2	R3
20:45:37	1016.761	10.3	SA3	UAG	976.916	9.58	A2	R3
20:45:47	1016.761	10.3	SA3	UAG	976.917	9.29	A2	R3
20:45:57	1045.691	11.5	RZ8	RLQ	973.284	9.79	5A	R7
20:46:07	1029.999	10.4	KW5	HVK	973.284	10.2	5A	R7
20:46:17	1029.999	10.7	KW5	HVK	973.284	10.4	5A	R7
20:46:27	1029.998	11	KW5	HVK	973.284	10.5	5A	R7
20:46:37	1029.998	11.5	KW5	HVK	998.166	9.96	E0	1
20:46:47	1029.998	11.9	KW5	HVK	998.166	10.2	E0	1
20:46:57	1029.998	12.3	KW5	HVK	998.166	10.3	E0	1
20:47:07	1029.998	12.5	KW5	HVK	998.166	10.3	E0	1
20:47:17	1029.998	12.6	KW5	HVK	998.166	10.2	E0	1
20:47:27	1029.998	12.5	KW5	HVK	998.166	10.1	E0	1
20:47:37	1029.998	12.2	KW5	HVK	991.196	10.3	3	9
20:47:47	1030	11.9	KW5	HVK	991.197	10.7	3	9
20:47:57	1030	11.7	KW5	HVK	991.197	10.8	3	9
20:48:07	1030	11.3	KW5	HVK	991.197	10.8	3	9
20:48:17	1030	10.9	KW5	HVK	991.197	10.6	3	9
20:48:27	1011.332	10.3	B82	BCE	991.197	10.3	3	9
20:48:37	1011.332	10.3	B82	BCE	978.216	10.4	4E	R2
20:48:47	1042.173	10.5	TA8	MEP	978.216	10.6	4E	R2
20:48:57	1042.173	10.5	TA8	MEP	978.216	10.6	4E	R2
20:49:07	1035.097	10.9	OW6	UQM	978.216	10.4	4E	R2
20:49:17	1035.097	11.4	OW6	UQM	983.554	9.34	D6	16
20:49:27	1035.097	11.6	OW6	UQM	962.953	9.64	EF	R17
20:49:37	1035.097	11.6	OW6	UQM	961.775	9.9	23	R19
20:49:47	1035.096	11.3	OW6	UQM	961.774	10.3	24	R19
20:49:57	1030	11.1	KW5	HVK	961.774	10.4	24	R19
20:50:07	1030	11.5	KW5	HVK	961.774	10.4	24	R19
20:50:17	1030	11.7	KW5	HVK	970.487	10.9	38	R10
20:50:27	1030	11.9	KW5	HVK	970.484	11.2	38	R10
20:50:37	1030	12	KW5	HVK	970.484	11.3	38	R10
20:50:47	1030	12	KW5	HVK	964.48	11.1	5E	R16
20:50:57	1030	11.9	KW5	HVK	964.48	11.3	5E	R16
20:51:07	1030	11.8	KW5	HVK	964.48	11.4	5E	R16
20:51:17	1038.626	11.7	PL7	BYN	964.48	11.4	5E	R16
20:51:27	1038.626	11.6	PL7	BYN	964.48	11.2	5E	R16
20:51:37	1038.626	11.4	PL7	BYN	964.48	11	5E	R16
20:51:47	1021.166	11	~54	OQH	973.83	10.7	CB	R6
20:51:57	1021.166	10.8	~54	OQH	987.296	10.8	1	13
20:52:07	1011.96	9.84	RC2	DIE	987.296	11	1	13
20:52:17	1011.96	9.89	RC2	DIE	987.298	11	1	13
20:52:27	1011.96	9.81	RC2	DIE	987.298	11.1	1	13
20:52:37	1001.468	9.86	FA0	HOA	987.299	11	0	13

20:52:47	1001.468	9.97	FA0	HOA	992.662	10.4	83	7
20:52:57	1001.468	9.9	FA0	HOA	992.662	10.3	83	7
20:53:07	1037.882	10.2	FG7	WQN	975.02	11	93	R5
20:53:17	1037.882	10.1	FG7	WQN	975.02	10.9	93	R5
20:53:27	1015.756	10.1	N33	~RF	975.02	10.6	93	R5
20:53:37	1035.432	10.5	1Z6	AUM	969.065	10.9	AC	R11
20:53:47	1021.948	11	JB4	DYH	969.065	11.1	AC	R11
20:53:57	1021.947	11	IB4	CYH	969.065	11.2	AC	R11
20:54:07	1021.947	10.9	IB4	CYH	969.065	11.1	AC	R11
20:54:18	1021.947	10.7	IB4	CYH	969.065	10.9	AC	R11
20:54:28	1017.71	10.7	IH3	~JG	992.725	10.1	72	7
20:54:38	1030.244	10.6	AY5	RXK	992.725	10.2	72	7
20:54:48	1030.244	10.7	AY5	RXK	992.724	10.2	72	7
20:54:58	1030.244	10.7	AY5	RXK	992.724	10.1	72	7
20:55:08	1030.242	10.7	AY5	RXK	992.724	9.98	72	7
20:55:18	1030.244	10.5	AY5	RXK	990.72	9.9	80	9
20:55:28	1030.001	11.2	LW5	IVK	990.72	10.2	80	9
20:55:38	1030.001	11.4	LW5	IVK	990.72	10.3	80	9
20:55:48	1030.001	11.6	LW5	IVK	990.72	10.2	80	9
20:55:58	1030.001	11.7	LW5	IVK	990.72	9.92	80	9
20:56:08	1030.001	11.9	LW5	IVK	965.037	10.1	CC	R15
20:56:18	1030.001	12.1	LW5	IVK	973.147	9.48	7E	R7
20:56:28	1030.001	12.3	LW5	IVK	973.147	9.79	7E	R7
20:56:38	1030	12.6	KW5	HVK	994.993	10.1	20	5
20:56:48	1030	12.8	KW5	HVK	994.993	10.2	20	5
20:56:58	1030	13	KW5	HVK	994.992	10.1	20	5
20:57:08	1030	13.1	KW5	HVK	970.51	10	32	R10
20:57:18	1029.999	13.1	KW5	HVK	981.847	9.87	96	18
20:57:28	1029.999	13	KW5	HVK	981.845	10	96	18
20:57:38	1029.999	12.9	KW5	HVK	981.845	10.1	96	18
20:57:48	1029.999	12.7	KW5	HVK	981.845	10	96	18
20:57:58	1029.999	12.4	KW5	HVK	972.447	10.1	36	R8
20:58:08	1029.999	12.1	KW5	HVK	972.447	10.2	36	R8
20:58:18	1029.999	11.7	KW5	HVK	972.447	10.2	36	R8
20:58:28	1029.999	11.3	KW5	HVK	972.447	10.1	36	R8
20:58:38	1029.999	10.8	KW5	HVK	972.447	10	36	R8
20:58:48	1029.999	10.5	KW5	HVK	972.447	9.82	36	R8
20:58:58	1051.936	10.7	~7A	HSS	992.682	10.5	7D	7
20:59:08	1051.936	11.2	~7A	HSS	999.781	10.8	38	0
20:59:18	1051.936	11.6	~7A	HSS	999.781	11	38	0
20:59:28	1051.936	11.9	~7A	HSS	999.781	11	38	0
20:59:38	1051.936	11.9	~7A	HSS	999.781	10.9	38	0
20:59:48	1051.936	11.9	~7A	HSS	999.781	10.6	38	0
20:59:58	1051.936	11.6	~7A	HSS	1000	11.1	FF	-1
21:00:08	1051.936	11.2	~7A	HSS	1000	11.1	FF	-1
21:00:18	1051.936	10.6	~7A	HSS	1000	11	FF	-1
21:00:28	1051.345	10.1	T3A	OMS	1000	10.9	FF	-1
21:00:38	1051.345	10.4	T3A	OMS	1000	10.8	FF	-1
21:00:48	1051.345	10.7	T3A	OMS	963.305	10.1	92	R17
21:00:58	1051.345	10.7	T3A	OMS	963.305	10.1	92	R17
21:01:08	1051.345	10.7	T3A	OMS	963.305	9.89	92	R17
21:01:18	1014.601	11.2	HV2	VGF	983.909	9.91	79	16
21:01:28	1034.971	10.4	SV6	OPM	976.363	9.9	33	R4
21:01:38	1034.971	10.5	SV6	OPM	976.363	9.9	33	R4
21:01:48	1004.733	10.3	KX0	~SB	976.365	9.96	33	R4
21:01:58	1004.733	10.3	KX0	~SB	976.365	10	33	R4
21:02:08	1012.59	10.4	7H2	GOE	976.366	10	33	R4
21:02:18	1012.59	10.3	7H2	GOE	982.133	9.94	4B	18
21:02:28	1012.59	10	7H2	GOE	982.133	10.2	4B	18
21:02:38	1045.637	10.9	CZ8	CLQ	982.133	10.4	4B	18
21:02:48	1057.371	11.5	HAB	ARU	974.695	10.4	E9	R5
21:02:58	1057.371	11.9	HAB	ARU	974.694	10.2	E9	R5
21:03:08	1057.371	12	HAB	ARU	974.694	9.84	E9	R5
21:03:18	1057.371	12	HAB	ARU	1000	10.8	FF	-1
21:03:28	1057.371	11.7	HAB	ARU	1000	10.9	FF	-1
21:03:38	1046.75	10.6	24	YVQ	1000	11	FF	-1
21:03:48	1046.75	10.6	24	YVQ	1000	11.1	FF	-1
21:03:58	1046.75	10.4	24	YVQ	1000	11.2	FF	-1
21:04:08	1046.75	10.1	24	YVQ	1000	11.2	FF	-1
21:04:19	1063.928	10.6	YKC	S~W	1000	11.3	FF	-1
21:04:29	1063.928	10.5	YKC	S~W	1000	11.4	FF	-1

21:04:39	1063.926	10.4	YKC	S~W	1000	11.5	FF	-1
21:04:49	1000	11.6	0	AAA	1000	11.6	FF	-1
21:04:59	1000.93	10.9	M60	BJA	1000	11.7	FF	-1
21:05:09	1000.93	10.7	M60	BJA	1000	11.7	FF	-1
21:05:19	1000.93	10.5	M60	BJA	1000	11.7	FF	-1
21:05:29	1000	11.7	0	AAA	1000	11.7	FF	-1
21:05:39	1000	11.7	0	AAA	1000	11.7	FF	-1
21:05:49	1000	11.7	0	AAA	1000	11.7	FF	-1
21:05:59	1000	11.6	0	AAA	1000	11.6	FF	-1
21:06:09	1000	11.6	0	AAA	1000	11.6	FF	-1
21:06:19	1048.425	10.5	3J9	ELR	1000	11.5	FF	-1
21:06:29	1009.549	10.6	OV1	TLD	1000	11.3	FF	-1
21:06:39	1009.547	10.9	OV1	TLD	989.748	10.4	7F	10
21:06:49	1009.547	11.2	OV1	TLD	961.802	10.1	1C	R19
21:06:59	1009.547	11.4	OV1	TLD	961.802	10.3	1C	R19
21:07:09	1009.547	11.3	OV1	TLD	961.802	10.4	1C	R19
21:07:19	1009.547	11	OV1	TLD	981.08	9.61	5F	19
21:07:29	1009.547	10.6	OV1	TLD	981.08	9.72	5F	19
21:07:39	1009.548	10.2	OV1	TLD	973.143	10.1	7F	R7
21:07:49	1009.548	10.1	OV1	TLD	975.56	9.82	6	R5
21:07:59	1055.047	10.9	OUA	MVT	975.559	9.75	6	R5
21:08:09	1055.048	11.1	1UA	NVT	975.559	9.46	6	R5
21:08:19	1055.048	11.1	1UA	NVT	997.571	9.22	7C	2
21:08:29	1055.048	10.9	1UA	NVT	990.08	9.54	27	10
21:08:39	1055.048	10.7	1UA	NVT	990.08	9.76	27	10
21:08:49	1073.45	10.8	EGE	DL~	990.08	9.84	27	10
21:08:59	1073.45	11	EGE	DL~	990.08	9.82	27	10
21:09:09	1039.892	10.7	NU7	IJO	990.08	9.73	27	10
21:09:19	1073.45	11.3	EGE	DL~	969.283	9.71	73	R11
21:09:29	1073.45	11.3	EGE	DL~	969.285	9.79	73	R11
21:09:39	1073.45	11.3	EGE	DL~	969.285	10	73	R11
21:09:49	1073.45	11.2	EGE	DL~	969.286	10.1	72	R11
21:09:59	1073.45	10.9	EGE	DL~	969.286	10.1	72	R11
21:10:09	1002.157	10.3	AF0	ZUA	999.621	10.3	62	0
21:10:19	1002.156	10.2	AF0	ZUA	999.621	10.3	62	0
21:10:29	1002.156	10.1	AF0	ZUA	981.58	10	DC	18
21:10:39	1002.156	9.88	AF0	ZUA	981.58	9.99	DC	18
21:10:49	1030	10.1	KW5	HVK	968.725	10.6	6	R12
21:10:59	1030	9.7	KW5	HVK	968.725	10.9	6	R12
21:11:09	1002.379	10.3	WG0	DXA	968.725	11	6	R12
21:11:19	1002.379	10.6	WG0	DXA	968.725	11	6	R12
21:11:29	1002.379	10.7	WG0	DXA	968.725	10.7	6	R12
21:11:39	1002.379	10.6	WG0	DXA	968.725	10.4	6	R12
21:11:49	1002.379	10.2	WG0	DXA	978.033	10.3	7E	R2
21:11:59	1029.999	9.9	KW5	HVK	978.033	10.4	7E	R2
21:12:09	1029.999	10.3	KW5	HVK	978.032	10.4	7E	R2
21:12:19	1030	10.9	KW5	HVK	978.032	10.4	7E	R2
21:12:29	1030	11.4	KW5	HVK	978.032	10.2	7E	R2
21:12:39	1030	11.8	KW5	HVK	978.032	9.98	7E	R2
21:12:49	1030	12.1	KW5	HVK	978.031	9.74	7E	R2
21:12:59	1030	12.2	KW5	HVK	978.03	9.46	7E	R2
21:13:09	1030	12.2	KW5	HVK	987.863	9.83	6D	12
21:13:19	1030	12.1	KW5	HVK	987.863	10	6D	12
21:13:29	1030.001	11.8	LW5	IVK	987.861	10.2	6D	12
21:13:39	1030.001	11.3	LW5	IVK	999.593	10.3	6A	0
21:13:49	1030.001	10.8	LW5	IVK	999.593	10.4	6A	0
21:13:59	1004.642	9.49	XW0	CSB	999.593	10.4	6A	0
21:14:09	1004.642	9.72	XW0	CSB	999.593	10.2	6A	0
21:14:20	1023.847	10.1	ZO4	OPI	979.254	9.64	3D	R1
21:14:30	1023.845	10.3	ZO4	OPI	979.254	9.89	3D	R1
21:14:40	1023.845	10.5	ZO4	OPI	977.717	9.76	D0	R2
21:14:50	1055.708	11.4	QYA	YAU	996.942	10.5	21	3
21:15:00	1055.708	11.5	QYA	YAU	996.942	10.7	21	3
21:15:10	1014.138	10.4	6S2	HCF	996.942	10.7	21	3
21:15:20	1014.138	10.2	6S2	HCF	990.144	9.92	17	10
21:15:30	1014.136	10.2	6S2	HCF	987.344	9.56	F5	12
21:15:40	1030.766	10.3	~16	TBL	987.344	9.69	F5	12
21:15:50	1030.767	10.5	~16	TBL	982.726	9.38	AF	17
21:16:00	1030.767	10.6	~16	TBL	981.444	9.6	FF	18
21:16:10	1030.767	10.5	~16	TBL	981.446	9.74	FF	18
21:16:20	1063.897	10.2	QKC	K~W	981.446	9.76	FF	18

21:16:30	1063.897	10.5	QKC	K~W	999.724	10.1	47	0
21:16:40	1063.897	10.7	QKC	K~W	999.724	10.5	47	0
21:16:50	1063.897	10.7	QKC	K~W	999.723	10.9	48	0
21:17:00	1063.897	10.7	QKC	K~W	999.723	11	48	0
21:17:10	1063.897	10.4	QKC	K~W	999.723	11.3	48	0
21:17:20	1063.896	10.2	QKC	K~W	999.723	11.3	48	0
21:17:30	1050.772	10.6	RZ9	~GS	999.722	11.2	48	0
21:17:40	1050.772	10.9	RZ9	~GS	999.722	11	48	0
21:17:50	1050.772	11	RZ9	~GS	999.722	10.8	48	0
21:18:00	1073.556	10.8	5HE	EM~	999.721	10.2	48	0
21:18:10	1073.556	11.1	5HE	EM~	999.721	9.91	48	0
21:18:20	1073.556	11.3	5HE	EM~	972.473	9.22	2F	R8
21:18:30	1073.556	11.3	5HE	EM~	993.35	9.52	CE	6
21:18:40	1013.293	11.4	7M2	CVE	993.35	9.7	CE	6
21:18:50	1013.293	11.5	7M2	CVE	980.742	10.3	B7	19
21:19:00	1013.293	11.4	7M2	CVE	980.742	10.3	B7	19
21:19:10	1030	11.3	KW5	HVK	976.759	10.5	CB	R3
21:19:20	1030	11.4	KW5	HVK	976.76	10.5	CB	R3
21:19:30	1030	11.5	KW5	HVK	970.76	10.2	F0	R9
21:19:40	1030	11.5	KW5	HVK	970.759	10.4	F0	R9
21:19:50	1030	11.4	KW5	HVK	970.759	10.5	F0	R9
21:20:00	1030	11.2	KW5	HVK	977.693	10.1	D7	R2
21:20:10	1030	10.9	KW5	HVK	977.693	10.5	D7	R2
21:20:20	1030	10.6	KW5	HVK	977.693	10.6	D7	R2
21:20:30	1023.561	11	YM4	UMI	977.693	10.6	D7	R2
21:20:40	1023.561	11.1	YM4	UMI	977.693	10.5	D7	R2
21:20:50	1023.561	11.1	YM4	UMI	977.693	10.1	D7	R2
21:21:00	1047.437	10.6	3C9	PBR	977.693	9.67	D7	R2
21:21:10	1047.437	10.8	3C9	PBR	967.321	9.58	76	R13
21:21:20	1047.437	10.8	3C9	PBR	967.321	10	76	R13
21:21:30	1047.437	10.7	3C9	PBR	992.423	10	C1	7
21:21:40	1010.355	11.3	E12	PTD	992.423	10.4	C1	7
21:21:50	1047.435	10.5	3C9	PBR	992.423	10.6	C1	7
21:22:00	1047.435	10.3	3C9	PBR	992.425	10.6	C1	7
21:22:10	1066.488	11.2	5D	OYX	992.425	10.6	C1	7
21:22:20	1030	10.3	KW5	HVK	977.976	11.5	8C	R2
21:22:30	1030	10.6	KW5	HVK	977.976	11.4	8C	R2
21:22:40	1030	10.9	KW5	HVK	977.976	11.1	8C	R2
21:22:50	1030	11	KW5	HVK	977.976	10.6	8C	R2
21:23:00	1030	11.1	KW5	HVK	985.231	9.95	1F	15
21:23:10	1030	11.1	KW5	HVK	985.231	9.91	1F	15
21:23:20	1030	11	KW5	HVK	973.101	10.2	8A	R7
21:23:30	1030	10.9	KW5	HVK	973.101	10.2	8A	R7
21:23:40	1033.399	11	NK6	HAM	973.101	10.1	8A	R7
21:23:50	1033.399	10.9	NK6	HAM	995.642	10.1	75	4
21:24:00	1039.514	11.2	ZR7	RFO	995.642	10.1	75	4
21:24:10	1039.514	11.3	ZR7	RFO	995.642	10	75	4
21:24:21	1039.514	11.2	ZR7	RFO	990.401	9.65	D3	9
21:24:31	1039.512	11	ZR7	RFO	990.401	9.89	D3	9
21:24:41	1039.512	10.5	ZR7	RFO	990.401	9.94	D3	9
21:24:51	1026.793	10.5	V95	ERJ	994.021	10.1	1E	6
21:25:01	1026.793	10.7	V95	ERJ	994.021	10.5	1E	6
21:25:11	1026.793	10.7	V95	ERJ	994.021	10.7	1E	6
21:25:21	1026.793	10.5	V95	ERJ	994.021	10.6	1E	6
21:25:31	1038.271	10.6	6J7	QUN	994.021	10.4	1E	6
21:25:41	1020.905	9.6	12	~NH	994.021	10	1E	6
21:25:51	1038.271	10.5	6J7	QUN	999.685	10.8	52	0
21:26:01	1017.125	10.3	CD3	HEG	999.685	10.4	52	0
21:26:11	1017.125	10.4	CD3	HEG	986.414	9.83	E8	13
21:26:21	1017.126	10.5	CD3	HEG	979.586	9.87	E6	R
21:26:31	1046.289	9.98	Z39	LRQ	979.585	9.91	E7	R
21:26:41	1046.289	10.3	Z39	LRQ	979.585	9.83	E7	R
21:26:51	1016.92	10.7	WB3	HCG	979.585	9.62	E7	R
21:27:01	1016.92	10.9	WB3	HCG	995.961	9.71	22	4
21:27:11	1016.92	11	WB3	HCG	995.961	10	22	4
21:27:21	1016.92	10.9	WB3	HCG	995.961	10.2	22	4
21:27:31	1016.92	10.6	WB3	HCG	995.961	10.3	22	4
21:27:41	1016.919	10.2	WB3	HCG	995.961	10.2	22	4
21:27:51	1007.361	10.3	6G1	NRC	995.962	10	22	4
21:28:01	1007.361	10.3	6G1	NRC	990.964	9.7	40	9
21:28:11	1048.815	10.3	WL9	~OR	990.964	9.77	40	9

21:28:21	1048.815	10.4	WL9	~OR	967.424	10.5	5B	R13
21:28:31	1048.815	10.4	WL9	~OR	967.421	10.8	5B	R13
21:28:41	1048.815	10.2	WL9	~OR	967.421	11	5B	R13
21:28:51	1027.69	9.92	7G5	XZJ	967.421	11	5B	R13
21:29:01	1038.509	10	VK7	YWN	992.362	10.4	D1	7
21:29:11	1038.509	10.5	VK7	YWN	992.362	10.3	D1	7
21:29:21	1038.509	10.8	VK7	YWN	992.363	10.1	D1	7
21:29:31	1038.509	11.1	VK7	YWN	992.363	9.9	D1	7
21:29:41	1038.509	11.3	VK7	YWN	992.363	9.6	D1	7
21:29:51	1038.509	11.4	VK7	YWN	992.363	9.2	D1	7
21:30:01	1038.51	11.4	VK7	YWN	999.583	9.92	6C	0
21:30:11	1038.51	11.4	VK7	YWN	999.583	10	6C	0
21:30:21	1038.51	11.4	VK7	YWN	999.583	10	6C	0
21:30:31	1038.51	11.3	VK7	YWN	999.583	9.92	6C	0
21:30:41	1038.51	11.2	VK7	YWN	978.019	9.65	81	R2
21:30:51	1038.509	10.9	VK7	YWN	978.02	9.55	81	R2
21:31:01	1038.509	10.6	VK7	YWN	961.976	9.17	EF	R18
21:31:11	1038.509	10.2	VK7	YWN	961.976	9.25	EF	R18
21:31:21	1014.001	10.5	7R2	ZAF	969.575	9.4	27	R11
21:31:31	1014.001	10.6	7R2	ZAF	988.787	10.1	7A	11
21:31:41	1014.001	10.6	7R2	ZAF	988.787	10	7A	11
21:31:51	1014.001	10.4	7R2	ZAF	988.787	9.86	7A	11
21:32:01	1030.352	10.1	2Z5	TYK	996.982	9.33	16	3
21:32:11	1030.352	10.1	2Z5	TYK	996.983	9.26	16	3
21:32:21	1014.719	11.2	AW2	YHF	964.858	9.37	FB	R15
21:32:31	1014.719	11.5	AW2	YHF	964.858	9.86	FB	R15
21:32:41	1014.719	11.7	AW2	YHF	964.858	10.2	FB	R15
21:32:51	1014.719	11.6	AW2	YHF	964.858	10.4	FB	R15
21:33:01	1014.719	11.5	AW2	YHF	964.858	10.5	FB	R15
21:33:11	1014.719	11.2	AW2	YHF	964.858	10.5	FB	R15
21:33:21	1014.72	10.8	BW2	ZHF	964.858	10.4	FB	R15
21:33:31	1055.109	11.6	GUA	BWT	994.593	10.7	88	5
21:33:41	1055.109	11.8	GUA	BWT	994.593	10.7	88	5
21:33:51	1055.109	11.8	GUA	BWT	994.593	10.5	88	5
21:34:01	1073.793	11.5	UIE	MO~	974.005	10.1	9D	R6
21:34:11	1073.793	11.6	UIE	MO~	974.005	10.5	9D	R6
21:34:23	1073.793	11.5	UIE	MO~	974.004	10.8	9E	R6
21:34:33	1073.793	11.2	UIE	MO~	974.004	10.8	9E	R6
21:34:43	1073.793	10.7	UIE	MO~	974.005	10.7	9D	R6
21:34:53	1026.933	10.8	UA5	NSJ	984.864	9.82	7F	15
21:35:03	1026.933	11.2	UA5	NSJ	984.864	10	7F	15
21:35:13	1026.933	11.4	UA5	NSJ	984.864	10.1	7F	15
21:35:23	1026.933	11.6	UA5	NSJ	984.864	10.1	7F	15
21:35:33	1026.933	11.6	UA5	NSJ	984.864	10	7F	15
21:35:43	1026.933	11.6	UA5	NSJ	984.865	9.88	7F	15
21:35:53	1026.933	11.4	UA5	NSJ	970.999	10.3	B1	R9
21:36:03	1026.933	11.1	UA5	NSJ	970.999	10.7	B1	R9
21:36:13	1026.933	10.7	UA5	NSJ	979.495	10.2	FE	R
21:36:23	1048.472	10.7	GJ9	RLR	979.495	10.4	FE	R
21:36:33	1034.648	9.82	IT6	LMM	979.495	10.4	FE	R
21:36:43	1037.07	10.9	OA7	ZIN	979.495	10.2	FE	R
21:36:53	1037.07	11	OA7	ZIN	996.561	10.4	85	3
21:37:03	1037.07	11	OA7	ZIN	996.561	10.1	85	3
21:37:13	1044.146	10.5	T08	RXP	971.757	9.17	EB	R8
21:37:23	1060.729	10.6	AYB	RWV	971.756	8.91	EB	R8
21:37:33	1060.729	10.5	AYB	RWV	995.145	9.24	F8	4
21:37:43	1039.396	10.8	4R7	NEO	985.552	10.4	CA	14
21:37:53	1039.396	11.1	4R7	NEO	985.552	10.7	CA	14
21:38:03	1039.396	11.3	4R7	NEO	985.552	10.9	CA	14
21:38:13	1039.396	11.3	4R7	NEO	985.552	10.8	CA	14
21:38:23	1039.396	11.3	4R7	NEO	979.888	9.93	97	R
21:38:33	1039.396	11.1	4R7	NEO	979.888	10.1	97	R
21:38:43	1039.396	10.9	4R7	NEO	979.888	10.2	97	R
21:38:53	1007.453	10.7	UG1	KSC	979.89	10.3	97	R
21:39:03	1007.455	10.9	UG1	KSC	975.228	10.5	5D	R5
21:39:23	1007.455	11.4	UG1	KSC	975.228	10.3	5D	R5
21:39:33	1007.455	11.5	UG1	KSC	973.343	10.3	4B	R7
21:39:43	1039.643	10.9	WS7	YGO	973.344	10.6	4B	R7
21:39:53	1039.644	11.1	WS7	YGO	973.344	10.8	4B	R7
21:40:03	1039.644	11.3	WS7	YGO	973.344	10.9	4B	R7
21:40:13	1056.157	11.1	W1B	GFU	973.344	10.8	4B	R7

21:40:23	1056.157	11.4	W1B	GFU	973.344	10.7	4B	R7
21:40:33	1056.157	11.6	W1B	GFU	973.344	10.4	4B	R7
21:40:43	1056.157	11.7	W1B	GFU	973.344	10.1	4B	R7
21:40:53	1056.157	11.7	W1B	GFU	973.343	9.69	4B	R7
21:41:03	1056.157	11.5	W1B	GFU	973.343	9.23	4B	R7
21:41:13	1056.157	11.3	W1B	GFU	985.747	10.1	97	14
21:41:23	1056.157	10.9	W1B	GFU	985.747	10.3	97	14
21:41:33	1038.511	10.6	VK7	YWN	985.747	10.4	97	14
21:41:43	1074.701	10.5	9PE	HX~	985.747	10.2	97	14
21:41:53	1074.701	10.4	9PE	HX~	985.747	9.9	97	14
21:42:03	1003.111	10.5	2M0	GDB	980.248	8.96	39	R
21:42:13	1061.932	10	T6C	IHW	980.248	9.27	39	R
21:42:23	1074.315	10.8	JME	OT~	980.249	9.5	39	R
21:42:33	1049.031	11	EN9	BRR	980.249	9.61	39	R
21:42:43	1049.031	11.4	EN9	BRR	994.825	9.71	4C	5
21:42:53	1049.031	11.6	EN9	BRR	986.556	9.72	C3	13
21:43:03	1049.031	11.6	EN9	BRR	998.469	10.5	90	1
21:43:13	1049.029	11.5	EN9	BRR	998.469	10.9	90	1
21:43:23	1049.029	11.2	EN9	BRR	998.469	11	90	1
21:43:33	1049.029	10.8	EN9	BRR	998.469	11.1	90	1
21:43:43	1058.095	9.87	MFB	BYU	998.468	10.9	91	1
21:43:53	1006.716	10.8	MB1	GLC	982.428	10.8	FD	17
21:44:03	1006.716	10.7	MB1	GLC	982.428	11	FD	17
21:44:13	1006.719	10.6	MB1	GLC	982.428	11.1	FD	17
21:44:24	1006.719	10.3	MB1	GLC	982.428	11.1	FD	17
21:44:34	1014.604	10.1	HV2	VGF	973.392	10.5	3E	R7
21:44:44	1014.604	10.1	HV2	VGF	973.392	10.5	3E	R7
21:44:54	1029.314	10.5	PR5	QOK	973.391	10.4	3E	R7
21:45:04	1029.314	10.5	PR5	QOK	969.907	10.3	D0	R10
21:45:14	1029.313	10.4	PR5	QOK	974.214	10.3	67	R6
21:45:24	1029.313	10.1	PR5	QOK	974.214	10.2	67	R6
21:45:34	1029.313	9.67	PR5	QOK	981.794	10.3	A4	18
21:45:44	1029.494	9.68	~S5	KOK	981.794	10.9	A4	18
21:45:54	1029.496	10.1	~S5	KOK	981.793	11.4	A4	18
21:46:04	1029.496	10.4	~S5	KOK	981.793	11.8	A4	18
21:46:14	1029.496	10.5	~S5	KOK	981.793	12	A4	18
21:46:24	1017.73	10.2	NH3	EKG	981.794	12.1	A4	18
21:46:34	1017.73	9.86	NH3	EKG	981.794	12	A4	18
21:46:44	1039.686	10.1	6T7	IHO	981.794	11.7	A4	18
21:46:54	1028.022	10.3	KI5	CCK	981.791	11.2	A4	18
21:47:04	1028.024	10.5	KI5	CCK	980.226	10.7	3F	R
21:47:14	1028.024	10.8	KI5	CCK	980.226	10.5	3F	R
21:47:24	1028.024	11	KI5	CCK	981.789	9.38	A5	18
21:47:34	1029.31	11.1	OR5	POK	981.789	8.76	A5	18
21:47:44	1029.31	11.2	OR5	POK	982.184	9.51	3D	18
21:47:54	1029.31	11.1	OR5	POK	982.184	9.84	3D	18
21:48:04	1029.31	10.9	OR5	POK	982.184	10	3D	18
21:48:14	1012.565	10.3	1H2	AOE	982.185	10	3D	18
21:48:24	1012.564	10.8	1H2	AOE	982.185	9.87	3D	18
21:48:34	1012.564	11.1	1H2	AOE	961.28	10.1	A5	R19
21:48:44	1012.564	11.2	1H2	AOE	961.28	10.2	A5	R19
21:48:54	1012.564	11.2	1H2	AOE	961.28	10.2	A5	R19
21:49:04	1045.016	11.3	ZU8	CFQ	961.28	9.95	A5	R19
21:49:23	1051.098	9.77	3A	DKS	987.218	9.85	16	13
21:49:33	1038.51	10.2	VK7	YWN	987.218	10	16	13
21:49:43	1038.51	10.5	VK7	YWN	987.218	10	16	13
21:49:53	1038.51	10.7	VK7	YWN	987.218	9.88	16	13
21:50:03	1038.509	11	VK7	YWN	980.185	10.6	49	R
21:50:13	1038.508	11.4	VK7	YWN	980.185	10.6	49	R
21:50:23	1038.508	11.7	VK7	YWN	991.076	10.4	22	9
21:50:33	1038.508	11.8	VK7	YWN	991.077	10.4	22	9
21:50:43	1038.508	11.9	VK7	YWN	991.078	10.5	22	9
21:50:53	1038.508	11.8	VK7	YWN	991.078	10.4	22	9
21:51:03	1038.508	11.5	VK7	YWN	991.078	10.1	22	9
21:51:13	1038.509	11.1	VK7	YWN	993.395	11.1	C2	6
21:51:23	1038.51	10.6	VK7	YWN	993.395	11.4	C2	6
21:51:33	1010.152	10.3	YZ1	PRD	993.395	11.6	C2	6
21:51:43	1066.741	10.9	W4D	AAY	993.395	11.6	C2	6
21:51:53	1066.741	11.1	W4D	AAY	993.395	11.4	C2	6
21:52:03	1066.741	11.1	W4D	AAY	993.394	11	C3	6
21:52:13	1066.741	11.1	W4D	AAY	963.758	10.4	1C	R17

21:52:23	1066.741	10.9	W4D	AAY	963.758	10.7	1C	R17
21:52:33	1066.741	10.6	W4D	AAY	963.758	10.8	1C	R17
21:52:43	1007.812	10.6	DJ1	XVC	963.758	10.7	1C	R17
21:52:53	1007.812	10.4	DJ1	XVC	963.758	10.5	1C	R17
21:53:03	1044.96	10.1	KU8	OEQ	963.757	10	1C	R17
21:53:13	1044.96	10.1	KU8	OEQ	967.29	10.3	7E	R13
21:53:23	1026.677	10.5	14	AQJ	967.29	10.4	7E	R13
21:53:33	1026.677	10.6	14	AQJ	967.291	10.3	7D	R13
21:53:43	1026.677	10.5	14	AQJ	967.611	10.7	2A	R13
21:53:53	1053.758	10.4	WKA	ZIT	967.611	10.9	2A	R13
21:54:03	1053.758	10.4	WKA	ZIT	967.611	11	2A	R13
21:54:13	1072.089	10.6	S6E	ZYZ	967.611	11	2A	R13
21:54:23	1072.089	10.7	S6E	ZYZ	967.611	10.9	2A	R13
21:54:33	1044.978	11.3	PU8	TEQ	967.611	10.6	2A	R13
21:54:43	1044.978	11.5	PU8	TEQ	965.616	10.9	35	R15
21:54:53	1044.978	11.6	PU8	TEQ	965.616	11	35	R15
21:55:03	1044.978	11.7	PU8	TEQ	963.296	9.93	95	R17
21:55:13	1044.979	11.6	PU8	TEQ	963.294	9.83	95	R17
21:55:23	1073.792	11.7	UIE	MO~	963.294	9.72	95	R17
21:55:33	1073.792	11.6	UIE	MO~	998.998	9.87	6	1
21:55:43	1073.792	11.5	UIE	MO~	964.58	9.17	44	R16
21:55:53	1073.791	11.4	UIE	MO~	964.58	9.41	44	R16
21:56:03	1073.791	11.2	UIE	MO~	964.58	9.56	44	R16
21:56:13	1073.791	11	UIE	MO~	964.58	9.64	44	R16
21:56:23	1073.791	10.7	UIE	MO~	968.263	10	7F	R12
21:56:33	1073.79	10.2	UIE	MO~	968.263	10.2	7F	R12
21:56:43	1016.881	10.3	MB3	YBG	968.263	10.4	7F	R12
21:56:53	1070.625	10.2	EWD	TKZ	968.263	10.3	7F	R12
21:57:03	1070.626	10.8	EWD	TKZ	968.263	10.1	7F	R12
21:57:13	1070.625	11.1	EWD	TKZ	996.049	9.92	OB	4
21:57:23	1070.625	11.4	EWD	TKZ	996.047	10	OB	4
21:57:33	1070.626	11.8	EWD	TKZ	996.047	10	OB	4
21:57:43	1070.626	12.1	EWD	TKZ	996.047	9.97	OB	4
21:57:53	1070.626	12.4	EWD	TKZ	996.047	9.7	OB	4
21:58:03	1070.626	12.6	EWD	TKZ	992.374	9.34	CE	7
21:58:13	1070.626	12.6	EWD	TKZ	992.374	9.29	CE	7
21:58:23	1070.626	12.5	EWD	TKZ	970.187	9.72	86	R10
21:58:33	1070.626	12.3	EWD	TKZ	983.827	10.6	8F	16
21:58:43	1070.626	11.9	EWD	TKZ	983.827	10.8	8F	16
21:58:53	1070.626	11.4	EWD	TKZ	983.827	10.9	8F	16
21:59:03	1070.626	10.7	EWD	TKZ	996.089	10.5	0	4
21:59:13	1070.626	10	EWD	TKZ	996.089	10.3	0	4
21:59:31	1048.826	10.8	YL9	BPR	972.724	10.3	ED	R7
21:59:41	1048.826	11	YL9	BPR	972.724	10.4	ED	R7
21:59:51	1048.825	11	YL9	BPR	972.724	10.4	ED	R7
22:00:01	1048.823	11	YL9	BPR	972.723	10.4	EE	R7
22:00:11	1048.823	10.9	YL9	BPR	985.441	10.3	E8	14
22:00:21	1048.823	10.7	YL9	BPR	985.44	10.2	E8	14
22:00:31	1028.325	10.3	PK5	AFK	985.44	10	E8	14
22:00:41	1007.887	10.8	XJ1	QWC	985.44	9.7	E8	14
22:00:51	1007.886	10.8	WJ1	PWC	976.717	10.5	D6	R3
22:01:01	1066.732	11.3	T4D	Y~X	976.717	10.5	D6	R3
22:01:11	1066.732	11.6	T4D	Y~X	976.717	10.5	D6	R3
22:01:21	1066.732	11.6	T4D	Y~X	976.717	10.3	D6	R3
22:01:31	1066.732	11.5	T4D	Y~X	976.717	10	D6	R3
22:01:41	1066.732	11.1	T4D	Y~X	992.395	9.82	C9	7
22:01:51	1066.732	10.6	T4D	Y~X	992.393	9.71	C9	7
22:02:01	1035.768	10.2	F17	HXM	991.824	10.3	5E	8
22:02:11	1006.839	10.3	HC1	LMC	991.824	10.2	5E	8
22:02:21	1006.839	10.3	HC1	LMC	991.824	9.98	5E	8
22:02:31	1006.839	10.3	HC1	LMC	977.372	9.59	2B	R3
22:02:41	1047.171	10.8	8A9	A~Q	977.372	9.91	2B	R3
22:02:51	1047.171	10.9	8A9	A~Q	977.372	10	2B	R3
22:03:01	1047.171	10.9	8A9	A~Q	984.153	10	39	16
22:03:11	1072.955	10.1	XCE	JG~	984.153	10.2	39	16
22:03:21	1072.955	10.4	XCE	JG~	984.153	10.3	39	16
22:03:31	1072.955	10.5	XCE	JG~	984.153	10.2	39	16
22:03:41	1072.955	10.6	XCE	JG~	984.154	10	39	16
22:03:51	1036.828	11	Y87	PGN	977.995	10.8	87	R2
22:04:01	1036.829	11.2	Z87	QGN	977.995	10.6	87	R2
22:04:11	1049.816	10.5	ZS9	SYR	977.995	10.3	87	R2

22:04:21	1049.816	10.4	ZS9	SYR	977.996	9.89	87	R2
22:04:31	1049.817	10.4	ZS9	SYR	978.903	10.7	99	R1
22:04:41	1063.88	10.6	MKC	G~W	978.903	11.3	99	R1
22:04:51	1063.88	10.5	MKC	G~W	978.903	11.7	99	R1
22:05:03	1074.667	10.9	1PE	~W~	978.903	11.8	99	R1
22:05:13	1074.667	10.9	1PE	~W~	978.903	11.8	99	R1
22:05:23	1074.666	10.7	0PE	ZW~	978.903	11.6	99	R1
22:05:33	1021.59	10.3	~84	RUH	978.903	11.2	99	R1
22:05:43	1021.59	10.7	~84	RUH	978.906	10.7	99	R1
22:05:52	1072.955	10.7	XCE	JG~	991.98	9.96	35	8
22:06:02	1072.955	11	XCE	JG~	991.98	10	35	8
22:06:12	1072.955	11.2	XCE	JG~	991.98	9.98	35	8
22:06:22	1072.955	11.2	XCE	JG~	999.738	9.77	44	0
22:06:32	1072.955	11.1	XCE	JG~	999.738	10.2	44	0
22:06:42	1072.955	10.9	XCE	JG~	980.696	10.7	C3	19
22:06:52	1072.955	10.5	XCE	JG~	980.696	11	C3	19
22:07:02	1008.128	10.6	ML1	ZYC	980.696	11.1	C3	19
22:07:12	1030.169	10.1	SX5	ZWK	999.759	10.3	3E	0
22:07:22	1055.88	10.8	YZA	PCU	999.759	10.2	3E	0
22:07:32	1055.88	10.7	YZA	PCU	999.759	10	3E	0
22:07:42	1019.297	11.1	RS3	KZG	976.87	10.6	AE	R3
22:07:52	1019.297	11.2	RS3	KZG	976.87	10.7	AE	R3
22:08:02	1019.298	11.1	RS3	KZG	976.87	10.7	AE	R3
22:08:12	1038.508	11.1	VK7	YWN	983.901	10	7B	16
22:08:22	1038.508	11.5	VK7	YWN	983.901	10.2	7B	16
22:08:32	1038.508	11.8	VK7	YWN	983.901	10.2	7B	16
22:08:42	1038.508	12.1	VK7	YWN	983.901	10.2	7B	16
22:08:52	1038.508	12.4	VK7	YWN	983.901	10.1	7B	16
22:09:02	1038.508	12.5	VK7	YWN	979.631	10.4	DB	R
22:09:12	1038.508	12.6	VK7	YWN	979.631	10.2	DB	R
22:09:22	1038.508	12.6	VK7	YWN	979.631	9.99	DB	R
22:09:32	1038.508	12.5	VK7	YWN	997.533	10	86	2
22:09:42	1038.508	12.3	VK7	YWN	997.533	10.2	86	2
22:09:52	1038.509	12	VK7	YWN	997.533	10.4	86	2
22:10:02	1038.51	11.9	VK7	YWN	997.533	10.5	86	2
22:10:12	1038.51	12	VK7	YWN	997.533	10.5	86	2
22:10:22	1038.511	12	VK7	YWN	997.533	10.4	86	2
22:10:36	1038.511	11.7	VK7	YWN	996.915	10.5	28	3
22:10:46	1038.511	11.4	VK7	YWN	996.915	10.8	28	3
22:10:56	1059.009	11.4	3MB	ZFV	996.915	10.8	28	3
22:11:06	1059.009	11.5	3MB	ZFV	996.915	10.7	28	3
22:11:16	1059.009	11.5	3MB	ZFV	981.587	10.2	DA	18
22:11:26	1059.009	11.3	3MB	ZFV	981.587	10.1	DA	18
22:11:36	1059.009	11	3MB	ZFV	981.586	10	DA	18
22:11:46	1059.01	10.6	3MB	ZFV	988.318	10.2	F5	11
22:11:56	1009.738	10.5	OX1	PND	988.321	10.5	F5	11
22:12:06	1009.738	10.6	OX1	PND	988.321	10.7	F5	11
22:12:16	1009.737	10.7	~W1	OND	988.321	10.8	F5	11
22:12:26	1059.774	10.9	IRB	JNV	988.321	10.6	F5	11
22:12:36	1000.139	11	~00	JBA	988.321	10.3	F5	11
22:12:46	1000.14	11.1	1	KBA	971.769	10.9	E8	R8
22:12:56	1000.14	11	1	KBA	971.769	10.8	E8	R8
22:13:06	1029.616	11.3	VT5	PRK	971.769	10.4	E8	R8
22:13:16	1026.56	11	20	YOJ	973.791	10.6	D6	R6
22:13:26	1026.56	10.8	20	YOJ	973.791	10.6	D6	R6
22:13:36	1026.561	10.5	20	YOJ	973.791	10.5	D6	R6
22:13:46	1026.561	10.1	20	YOJ	973.791	10.3	D6	R6
22:13:56	1017.081	10.3	1D3	XDG	967.375	9.71	67	R13
22:14:06	1017.081	10.6	1D3	XDG	967.376	9.9	67	R13
22:14:16	1025.346	10.9	LZ4	CDJ	967.376	9.96	67	R13
22:14:26	1025.346	11	LZ4	CDJ	967.376	9.92	67	R13
22:14:36	1025.346	11.1	LZ4	CDJ	967.376	9.79	67	R13
22:14:46	1025.345	11.1	LZ4	CDJ	967.377	9.68	67	R13
22:14:56	1025.344	11.1	LZ4	CDJ	967.377	9.46	67	R13
22:15:06	1025.344	10.9	LZ4	CDJ	974.904	9.95	B2	R5
22:15:16	1025.344	10.7	LZ4	CDJ	990.095	10.5	24	10
22:15:26	1025.344	10.3	LZ4	CDJ	968.417	10.3	56	R12
22:15:36	1055.123	10.3	KUA	FWT	968.417	10.5	56	R12
22:15:46	1055.123	10.5	KUA	FWT	968.417	10.7	56	R12
22:15:56	1055.123	10.7	KUA	FWT	968.417	10.7	56	R12
22:16:07	1055.123	10.7	KUA	FWT	991.614	10.5	95	8

22:16:17	1055.124	10.5	KUA	FWT	991.614	10.9	95	8
22:16:27	1038.225	10.7	UI7	DUN	991.614	11.2	95	8
22:16:37	1038.224	10.8	UI7	DUN	991.614	11.3	95	8
22:16:47	1038.224	10.8	UI7	DUN	991.614	11.2	95	8
22:16:57	1038.224	10.7	UI7	DUN	991.614	10.9	95	8
22:17:07	1062.429	10.9	BAC	DMW	971.41	10.6	46	R9
22:17:17	1042.567	11.5	MD8	IIP	971.41	10.8	46	R9
22:17:27	1042.567	11.7	MD8	IIP	971.411	10.9	45	R9
22:17:37	1042.567	11.7	MD8	IIP	965.738	10.1	15	R15
22:17:47	1042.567	11.6	MD8	IIP	971.411	10.8	45	R9
22:17:57	1042.567	11.3	MD8	IIP	971.411	10.6	45	R9
22:18:07	1042.567	11	MD8	IIP	971.411	10.3	45	R9
22:18:17	1042.567	10.4	MD8	IIP	971.411	9.97	45	R9
22:18:27	1051.226	10.2	Z2A	KLS	989.505	9.32	BE	10
22:18:37	1051.229	10.1	Z2A	KLS	989.505	9.31	BE	10
22:18:47	1051.229	9.93	Z2A	KLS	997.164	10.3	E6	2
22:18:57	1026.563	9.95	20	YOJ	988.466	10.7	CF	11
22:19:07	1026.563	10.1	20	YOJ	988.467	10.9	CE	11
22:19:17	1026.563	10.3	20	YOJ	988.467	11	CE	11
22:19:27	1036.879	10.1	B97	CHN	988.467	10.8	CE	11
22:19:37	1036.879	10.1	B97	CHN	988.469	10.6	CE	11
22:19:47	1036.88	10	B97	CHN	977.451	10.4	16	R3
22:19:57	1036.881	9.94	B97	CHN	977.45	10.6	16	R3
22:20:07	1039.747	11.1	MT7	YHO	977.45	10.6	16	R3
22:20:17	1039.747	11	MT7	YHO	977.45	10.4	16	R3
22:20:27	1007.03	10	UD1	HOC	980.264	10.4	35	R
22:20:37	1025.159	9.76	9Y4	HBJ	980.264	10.1	35	R
22:20:47	1038.497	9.87	SK7	VWN	980.264	9.78	35	R
22:20:57	1038.497	10.3	SK7	VWN	995.44	10.3	AA	4
22:21:07	1038.497	10.7	SK7	VWN	995.44	10.5	AA	4
22:21:17	1038.497	11	SK7	VWN	995.44	10.6	AA	4
22:21:27	1038.496	11.1	RK7	UWN	995.44	10.5	AA	4
22:21:41	1038.496	11	RK7	UWN	995.44	10	AA	4
22:21:51	1038.496	10.8	RK7	UWN	984.29	9.67	15	16
22:22:01	1048.818	10.7	WL9	~OR	984.29	9.83	15	16
22:22:11	1048.818	10.7	WL9	~OR	990.945	10	45	9
22:22:21	1060.251	10.8	WUB	~RV	979.826	10.3	A7	R
22:22:31	1060.25	10.9	WUB	~RV	979.826	10.4	A7	R
22:22:41	1060.25	11	WUB	~RV	979.826	10.3	A7	R
22:22:51	1062.934	11.8	XDC	BRW	990.946	10.5	44	9
22:23:01	1062.936	12.1	XDC	BRW	990.946	10.2	44	9
22:23:11	1062.936	12.4	XDC	BRW	962.813	10.2	13	R18
22:23:21	1062.936	12.5	XDC	BRW	962.813	10.5	13	R18
22:23:31	1062.936	12.3	XDC	BRW	962.813	10.7	13	R18
22:23:41	1062.936	12	XDC	BRW	962.815	10.7	13	R18
22:23:51	1072.957	11.1	XCE	JG~	962.815	10.7	13	R18
22:24:01	1072.957	11.1	XCE	JG~	962.816	10.5	13	R18
22:24:11	1072.956	10.9	XCE	JG~	980.832	9.76	A0	19
22:24:21	1072.956	10.9	XCE	JG~	965.217	10.2	9D	R15
22:24:31	1072.956	11	XCE	JG~	965.217	10.4	9D	R15
22:24:41	1072.956	11.2	XCE	JG~	965.217	10.4	9D	R15
22:24:51	1072.957	11.6	XCE	JG~	965.217	10.2	9D	R15
22:25:01	1072.957	12.1	XCE	JG~	977.851	10.4	AD	R2
22:25:11	1072.958	12.4	YCE	KG~	977.853	10.7	AD	R2
22:25:21	1072.958	12.6	YCE	KG~	977.853	10.9	AD	R2
22:25:31	1072.958	12.7	YCE	KG~	977.853	10.9	AD	R2
22:25:41	1072.958	12.5	YCE	KG~	977.854	10.7	AC	R2
22:25:51	1072.958	12.2	YCE	KG~	988.005	10.3	47	12
22:26:01	1072.958	11.7	YCE	KG~	991.309	9.16	E5	8
22:26:11	1072.958	11	YCE	KG~	991.309	9.55	E5	8
22:26:21	1037.756	10.7	JF7	QPN	998.125	10.6	EB	1
22:26:31	1026.673	9.97	~85	~PJ	998.125	10.9	EB	1
22:26:41	1040.342	10.6	UX7	SNO	998.125	10.9	EB	1
22:26:51	1035.425	11.3	~Y6	ZTM	969.32	10.6	6A	R11
22:27:01	1035.425	11.6	~Y6	ZTM	983.68	10.1	B5	16
22:27:11	1035.425	11.7	~Y6	ZTM	973.573	10.5	OF	R7
22:27:21	1049.735	10.9	ES9	YXR	973.573	10.6	OF	R7
22:27:31	1034.184	10.7	7Q6	YHM	973.573	10.5	OF	R7
22:27:41	1034.184	11.2	7Q6	YHM	983.679	11.2	B5	16
22:27:51	1034.185	11.5	7Q6	YHM	983.679	11.1	B5	16
22:28:01	1044.435	11.9	UQ8	L~P	986.951	10.3	5C	13

22:28:11	1044.435	12.2	UQ8	L~P	986.951	10.2	5C	13
22:28:21	1044.435	12.4	UQ8	L~P	986.951	10	5C	13
22:28:31	1044.435	12.4	UQ8	L~P	986.951	9.73	5C	13
22:28:41	1044.435	12.3	UQ8	L~P	981.877	9.19	8E	18
22:28:51	1044.436	12	VQ8	M~P	981.877	9.4	8E	18
22:29:01	1044.436	11.6	VQ8	M~P	981.877	9.5	8E	18
22:29:11	1038.508	11.7	VK7	YWN	981.878	9.5	8E	18
22:29:21	1038.508	12.5	VK7	YWN	987.253	9.83	OD	13
22:29:31	1038.508	13.3	VK7	YWN	987.253	10.4	OD	13
22:29:41	1038.508	13.9	VK7	YWN	987.253	10.8	OD	13
22:29:51	1038.508	14.5	VK7	YWN	987.253	11	OD	13
22:30:01	1038.508	14.9	VK7	YWN	987.254	11	OC	13
22:30:11	1038.508	15.4	VK7	YWN	987.254	10.9	OC	13
22:30:21	1038.508	15.8	VK7	YWN	987.256	10.7	OC	13
22:30:31	1038.508	16.1	VK7	YWN	987.256	10.5	OC	13
22:30:41	1038.508	16.4	VK7	YWN	987.256	10.1	OC	13
22:30:51	1038.508	16.6	VK7	YWN	974.204	9.92	69	R6
22:31:01	1038.508	16.7	VK7	YWN	974.204	10	69	R6
22:31:11	1038.508	16.7	VK7	YWN	974.204	9.93	69	R6
22:31:21	1038.508	16.6	VK7	YWN	974.204	9.69	69	R6
22:31:31	1038.508	16.4	VK7	YWN	967.317	9.17	77	R13
22:31:41	1038.508	16	VK7	YWN	999.464	9.46	8C	0
22:31:51	1038.508	15.5	VK7	YWN	999.464	9.7	8C	0
22:32:01	1038.511	14.8	VK7	YWN	999.463	9.72	8C	0
22:32:11	1038.511	14.3	VK7	YWN	999.463	9.53	8C	0
22:32:21	1038.512	13.6	WK7	ZWN	995.315	9.53	CB	4
22:32:31	1038.512	12.7	WK7	ZWN	995.315	9.41	CB	4
22:32:45	1073.79	14.6	UIE	MO~	980.567	9.77	E5	19
22:32:55	1073.79	15.4	UIE	MO~	980.567	9.82	E5	19
22:33:05	1073.79	16.2	UIE	MO~	980.567	9.65	E5	19
22:33:15	1073.79	16.9	UIE	MO~	980.567	9.25	E5	19
22:33:25	1073.791	17.6	UIE	MO~	981.467	9.39	F9	18
22:33:35	1073.791	18.2	UIE	MO~	988.417	10.1	DB	11
22:33:45	1073.791	18.7	UIE	MO~	988.417	10.3	DB	11
22:33:55	1073.791	19.2	UIE	MO~	988.417	10.3	DB	11
22:34:05	1073.791	19.6	UIE	MO~	988.417	10.3	DB	11
22:34:15	1073.791	19.8	UIE	MO~	971.568	10.1	1C	R9
22:34:25	1073.791	20.2	UIE	MO~	971.568	10	1C	R9
22:34:35	1073.791	20.4	UIE	MO~	971.568	9.95	1C	R9
22:34:45	1073.791	20.5	UIE	MO~	971.568	9.86	1C	R9
22:34:55	1073.791	20.7	UIE	MO~	971.568	9.54	1C	R9
22:35:05	1073.791	20.8	UIE	MO~	971.568	9.42	1C	R9
22:35:15	1073.791	20.9	UIE	MO~	965.594	9.63	3A	R15
22:35:25	1073.791	21	UIE	MO~	965.594	9.7	3A	R15
22:35:34	1073.791	21	UIE	MO~	965.594	9.66	3A	R15
22:35:44	1073.791	21	UIE	MO~	967.774	9.27	FF	R12
22:35:54	1073.791	21	UIE	MO~	996.989	10.1	14	3
22:36:05	1073.791	21	UIE	MO~	996.989	10.6	14	3
22:36:14	1073.791	20.9	UIE	MO~	996.989	10.7	14	3
22:36:25	1073.791	20.7	UIE	MO~	996.989	10.7	14	3
22:36:34	1073.791	20.6	UIE	MO~	996.989	10.6	14	3
22:36:44	1073.791	20.2	UIE	MO~	996.989	10.3	14	3
22:36:55	1073.79	19.5	UIE	MO~	995.021	10	18	5
22:37:04	1073.79	19.2	UIE	MO~	995.021	10	18	5
22:37:14	1073.79	18.5	UIE	MO~	995.021	10	18	5
22:37:24	1073.79	17.6	UIE	MO~	995.02	9.93	18	5
22:37:34	1073.79	16.5	UIE	MO~	995.02	9.65	18	5
22:37:44	1038.508	16.6	VK7	YWN	993.505	9.46	A6	6
22:37:54	1038.508	17.6	VK7	YWN	993.505	9.52	A6	6
22:38:04	1038.508	18.3	VK7	YWN	994.462	9.42	AB	5
22:38:16	1038.509	19.3	VK7	YWN	994.461	9.39	AB	5
22:38:26	1038.509	19.7	VK7	YWN	994.461	9.25	AB	5
22:38:36	1038.509	20.1	VK7	YWN	991.64	10.2	8F	8
22:38:46	1038.51	20.5	VK7	YWN	991.64	10.3	8F	8
22:38:56	1038.51	20.7	VK7	YWN	991.64	10.2	8F	8
22:39:06	1038.51	20.8	VK7	YWN	968.269	8.97	7D	R12
22:39:16	1038.51	20.8	VK7	YWN	968.269	8.79	7D	R12
22:39:26	1038.51	20.8	VK7	YWN	973.096	9.09	8C	R7
22:39:36	1038.51	20.8	VK7	YWN	976.363	9.21	33	R4
22:39:46	1038.51	20.7	VK7	YWN	976.363	9.51	33	R4
22:39:56	1038.509	20.7	VK7	YWN	976.363	9.7	33	R4

22:40:06	1038.509	20.7	VK7	YWN	976.363	9.78	33	R4
22:40:16	1038.509	20.6	VK7	YWN	976.363	9.76	33	R4
22:40:26	1038.509	20.6	VK7	YWN	989.664	10.3	95	10
22:40:36	1038.509	20.6	VK7	YWN	989.663	10.3	95	10
22:40:46	1038.509	20.5	VK7	YWN	989.663	10.1	95	10
22:40:56	1038.509	20.5	VK7	YWN	989.663	9.83	95	10
22:41:06	1038.509	20.4	VK7	YWN	975.831	9.82	BF	R4
22:41:16	1038.509	20.3	VK7	YWN	975.831	9.73	BF	R4
22:41:26	1038.508	20.1	VK7	YWN	976.66	9.76	E5	R3
22:41:36	1038.508	19.8	VK7	YWN	976.66	9.73	E5	R3
22:41:46	1038.508	19.4	VK7	YWN	976.66	9.51	E5	R3
22:41:56	1038.508	18.9	VK7	YWN	976.661	9.1	E5	R3
22:42:06	1038.508	18.1	VK7	YWN	965.404	9.53	6C	R15
22:42:16	1038.508	17.2	VK7	YWN	965.404	10	6C	R15
22:42:26	1038.508	15.9	VK7	YWN	965.403	10.3	6C	R15
22:42:36	1072.955	15.6	XCE	JG~	965.403	10.4	6C	R15
22:42:46	1072.955	16.7	XCE	JG~	965.403	10.3	6C	R15
22:42:56	1072.955	17.6	XCE	JG~	965.403	10	6C	R15
22:43:06	1072.955	18.3	XCE	JG~	967.707	10.1	10	R13
22:43:16	1072.955	19	XCE	JG~	967.707	10	10	R13
22:43:26	1072.955	19.4	XCE	JG~	999.835	9.87	2A	0
22:43:36	1072.955	19.8	XCE	JG~	999.835	10	2A	0
22:43:50	1072.955	20.3	XCE	JG~	991.282	9.98	EC	8
22:44:00	1072.955	20.4	XCE	JG~	998.479	9.66	8E	1
22:44:10	1072.955	20.5	XCE	JG~	998.479	9.72	8E	1
22:44:20	1072.955	20.6	XCE	JG~	998.479	9.63	8E	1
22:44:30	1072.955	20.6	XCE	JG~	998.479	9.39	8E	1
22:44:40	1072.956	20.5	XCE	JG~	978.938	9.44	90	R1
22:44:50	1072.956	20.5	XCE	JG~	980.066	10	69	R
22:45:00	1072.956	20.4	XCE	JG~	980.066	10.3	69	R
22:45:10	1072.956	20.3	XCE	JG~	980.066	10.5	69	R
22:45:20	1072.956	20.2	XCE	JG~	980.066	10.5	69	R
22:45:30	1072.956	20.1	XCE	JG~	980.065	10.3	69	R
22:45:40	1072.956	20	XCE	JG~	980.065	10.1	69	R
22:45:50	1072.956	19.9	XCE	JG~	980.065	9.86	69	R
22:46:00	1072.956	19.8	XCE	JG~	978.662	10.3	D9	R1
22:46:10	1072.956	19.7	XCE	JG~	978.662	10.4	D9	R1
22:46:20	1072.956	19.5	XCE	JG~	996.408	10.2	AD	3
22:46:30	1072.955	19.3	XCE	JG~	962.16	9.75	BF	R18
22:46:40	1072.955	19.1	XCE	JG~	990.361	9.03	DE	9
22:48:10	1038.511	15.3	VK7	YWN	983.592	10.3	CC	16
22:48:20	1038.51	16	VK7	YWN	983.592	10	CC	16
22:48:30	1038.51	16.6	VK7	YWN	983.594	9.75	CC	16
22:48:40	1038.51	17.1	VK7	YWN	983.301	10.6	19	17
22:48:50	1038.51	17.5	VK7	YWN	983.301	11	19	17
22:49:00	1038.51	17.9	VK7	YWN	983.301	11.2	19	17
22:49:10	1038.51	18.2	VK7	YWN	983.301	11.1	19	17
22:49:20	1038.51	18.5	VK7	YWN	983.301	10.9	19	17
22:49:30	1038.51	18.7	VK7	YWN	983.653	10.4	BC	16
22:50:10	1038.509	19.5	VK7	YWN	986.485	9.57	D6	13
22:50:20	1038.509	19.7	VK7	YWN	986.485	9.64	D6	13
22:50:30	1038.509	19.8	VK7	YWN	986.486	9.64	D6	13
22:50:40	1038.509	20	VK7	YWN	984.545	9.93	D2	15
22:50:50	1038.509	20.1	VK7	YWN	973.764	9.91	DD	R6
22:51:00	1038.509	20.2	VK7	YWN	963.869	9.94	FF	R16
22:51:10	1038.509	20.2	VK7	YWN	963.868	10	FF	R16
22:51:20	1038.509	20.1	VK7	YWN	963.868	10.1	FF	R16
22:51:30	1038.509	20	VK7	YWN	963.868	10	FF	R16
22:51:40	1038.508	19.7	VK7	YWN	963.867	9.91	FF	R16
22:51:50	1038.508	19.3	VK7	YWN	966.409	10.8	65	R14
22:52:00	1038.508	18.8	VK7	YWN	966.409	11	65	R14
22:52:10	1038.508	18.1	VK7	YWN	966.409	11	65	R14
22:52:20	1038.511	17.3	VK7	YWN	988.397	10.5	E1	11
22:52:30	1038.511	16.3	VK7	YWN	971.361	10.8	53	R9
22:52:40	1073.793	16	UIE	MO~	971.362	11.1	52	R9
22:52:50	1073.793	16.9	UIE	MO~	971.362	11.1	52	R9
22:53:00	1073.792	17.6	UIE	MO~	971.362	11	52	R9
22:53:10	1073.792	18.3	UIE	MO~	971.364	10.9	52	R9
22:53:20	1073.792	18.8	UIE	MO~	971.365	10.6	51	R9
22:53:30	1073.792	19.2	UIE	MO~	982.683	10.9	BB	17
22:53:40	1073.792	19.5	UIE	MO~	982.683	10.9	BB	17

22:53:50	1073.792	19.8	UIE	MO~	995.366	10.2	BE		4
22:54:00	1073.792	20.1	UIE	MO~	995.366	10.1	BE		4
22:54:10	1073.792	20.2	UIE	MO~	995.366	10	BE		4
22:54:20	1073.792	20.4	UIE	MO~	995.366	9.77	BE		4
22:54:30	1073.791	20.5	UIE	MO~	964.105	10.3	C1	R16	
22:54:40	1073.791	20.6	UIE	MO~	964.105	10.7	C1	R16	
22:54:50	1073.791	20.7	UIE	MO~	964.105	10.8	C1	R16	
22:55:00	1073.791	20.8	UIE	MO~	970.747	11	F3	R9	
22:55:11	1073.791	20.9	UIE	MO~	970.746	11	F4	R9	
22:55:21	1073.791	21	UIE	MO~	970.746	10.8	F4	R9	
22:55:31	1073.791	21.1	UIE	MO~	970.746	10.4	F4	R9	
22:55:41	1073.791	21.2	UIE	MO~	970.746	9.85	F4	R9	
22:55:51	1073.791	21.2	UIE	MO~	997.495	9.85		90	2
22:56:01	1073.791	21.3	UIE	MO~	997.495	9.93		90	2
22:56:11	1073.791	21.2	UIE	MO~	997.495	9.82		90	2
22:56:21	1073.791	21.1	UIE	MO~	997.495	9.53		90	2
22:56:31	1073.791	20.9	UIE	MO~	992.681	10.2	7E		7
22:56:41	1073.791	20.5	UIE	MO~	992.681	9.99	7E		7
22:56:51	1073.791	20.1	UIE	MO~	992.68	9.63	7E		7
22:57:01	1073.79	19.4	UIE	MO~	968.835	10	E9	R11	
22:57:11	1073.793	18.8	UIE	MO~	988.366	9.41	E9		11
22:57:21	1073.793	18.1	UIE	MO~	988.366	9.98	E9		11
22:57:31	1073.793	17.3	UIE	MO~	988.366	10.3	E9		11
22:57:41	1038.511	17.6	VK7	YWN	988.367	10.5	E9		11
22:57:51	1038.511	18.9	VK7	YWN	988.367	10.6	E9		11
22:58:01	1038.511	19.9	VK7	YWN	972.517	10.8		24	R8
22:58:11	1038.511	20.8	VK7	YWN	972.517	10.9		24	R8
22:58:21	1038.51	21.5	VK7	YWN	971.742	10.4	EF	R8	
22:58:31	1038.508	22	VK7	YWN	971.742	10.7	EF	R8	
22:58:41	1038.509	22.6	VK7	YWN	971.742	10.8	EF	R8	
22:58:51	1038.509	23	VK7	YWN	969.015	11.4	BA	R11	
22:59:01	1038.509	23.3	VK7	YWN	969.015	11.6	BA	R11	
22:59:11	1038.509	23.5	VK7	YWN	991.355	11.4	D9		8
22:59:21	1038.509	23.7	VK7	YWN	991.355	11.7	D9		8
22:59:31	1038.509	23.7	VK7	YWN	991.354	11.9	D9		8
22:59:41	1038.509	23.8	VK7	YWN	991.354	11.9	D9		8
22:59:51	1038.509	23.8	VK7	YWN	991.354	11.8	D9		8
23:00:01	1038.509	23.8	VK7	YWN	991.354	11.5	D9		8
23:00:11	1038.509	23.7	VK7	YWN	991.354	11	D9		8
23:00:21	1038.509	23.7	VK7	YWN	991.354	10.3	D9		8
23:00:31	1038.509	23.7	VK7	YWN	993.533	9.75	9E		6
23:00:41	1038.509	23.7	VK7	YWN	993.533	9.8	9E		6
23:00:51	1038.509	23.6	VK7	YWN	976.611	9.83	F2	R3	
23:01:01	1038.509	23.5	VK7	YWN	992.326	10	DB		7
23:01:11	1038.509	23.4	VK7	YWN	992.326	10.2	DB		7
23:01:21	1038.509	23.1	VK7	YWN	992.326	10.2	DB		7
23:01:31	1038.509	22.9	VK7	YWN	992.326	10.1	DB		7
23:01:41	1038.509	22.5	VK7	YWN	988.428	10.5	D9		11
23:01:51	1038.509	22.1	VK7	YWN	988.428	11	D9		11
23:02:01	1038.509	21.5	VK7	YWN	988.428	11.4	D9		11
23:02:11	1038.509	20.9	VK7	YWN	988.428	11.5	D9		11
23:02:21	1038.508	20.1	VK7	YWN	988.428	11.5	D9		11
23:02:31	1038.508	19.2	VK7	YWN	988.428	11.3	D9		11
23:02:41	1038.508	18.2	VK7	YWN	988.428	10.9	D9		11
23:02:51	1072.957	19.1	XCE	JG~	988.428	10.3	D9		11
23:03:01	1072.957	20.1	XCE	JG~	968.886	9.71	DB	R11	
23:03:11	1072.955	20.9	XCE	JG~	968.886	9.69	DB	R11	
23:03:21	1072.955	21.6	XCE	JG~	968.886	9.52	DB	R11	
23:03:31	1072.955	22.1	XCE	JG~	978.218	9.13	4D	R2	
23:03:41	1072.955	22.6	XCE	JG~	989.15	9.49	1B		11
23:03:51	1072.955	22.9	XCE	JG~	967.554	10.4		39	R13
23:04:01	1072.955	23.1	XCE	JG~	967.555	10.6		38	R13
23:04:11	1072.955	23.2	XCE	JG~	967.555	10.7		38	R13
23:04:21	1072.955	23.3	XCE	JG~	967.555	10.7		38	R13
23:04:31	1072.956	23.3	XCE	JG~	967.555	10.5		38	R13
23:04:41	1072.956	23.3	XCE	JG~	967.557	10.4		38	R13
23:04:51	1072.956	23.3	XCE	JG~	989.318	10.2	EF		10
23:05:01	1072.956	23.3	XCE	JG~	989.32	10.3	EF		10
23:05:12	1072.956	23.2	XCE	JG~	989.32	10.3	EF		10
23:05:22	1072.956	23.2	XCE	JG~	994.611	10.3		84	5
23:05:32	1072.956	23.3	XCE	JG~	994.611	10.1		84	5

23:05:42	1072.956	23.3	XCE	JG~	991.526	10.4	AC		8
23:05:52	1072.956	23.3	XCE	JG~	991.526	10.6	AC		8
23:06:02	1072.955	23.2	XCE	JG~	978.895	10.4	9C	R1	
23:06:12	1072.955	23.1	XCE	JG~	978.895	10.7	9C	R1	
23:06:22	1072.955	23	XCE	JG~	978.895	10.8	9C	R1	
23:06:32	1072.955	22.7	XCE	JG~	967.708	10.2		10	R13
23:06:42	1072.955	22.4	XCE	JG~	996.539	10	8A		3
23:06:52	1072.955	22	XCE	JG~	996.539	10.1	8A		3
23:07:02	1072.955	21.4	XCE	JG~	996.539	10.2	8A		3
23:07:12	1072.955	20.7	XCE	JG~	996.539	10.3	8A		3
23:07:22	1072.955	19.9	XCE	JG~	996.539	10.2	8A		3
23:07:32	1072.955	18.9	XCE	JG~	996.539	10	8A		3
23:07:42	1072.955	17.8	XCE	JG~	999.45	9.71	8F		0
23:07:52	1038.508	19.4	VK7	YWN	999.449	9.9	8F		0
23:08:02	1038.508	20.3	VK7	YWN	999.449	9.97	8F		0
23:08:12	1038.508	21.1	VK7	YWN	999.449	9.89	8F		0
23:08:22	1038.508	21.7	VK7	YWN	966.818	10.2	F9	R13	
23:08:32	1038.508	22.2	VK7	YWN	966.818	10.1	F9	R13	
23:08:42	1038.508	22.6	VK7	YWN	968.099	9.95	AA	R12	
23:08:52	1038.509	23	VK7	YWN	968.099	9.9	AA	R12	
23:09:02	1038.509	23.2	VK7	YWN	968.099	9.75	AA	R12	
23:09:12	1038.509	23.5	VK7	YWN	978.365	10.2		26	R2
23:09:22	1038.509	23.6	VK7	YWN	978.365	10.1		26	R2
23:09:32	1038.509	23.8	VK7	YWN	995.097	9.8		4	5
23:09:42	1038.509	23.9	VK7	YWN	995.097	9.75		4	5
23:09:52	1038.509	24	VK7	YWN	967.22	9		90	R13
23:10:02	1038.509	24.1	VK7	YWN	967.22	9.22		90	R13
23:10:13	1038.509	24.2	VK7	YWN	967.22	9.39		90	R13
23:10:23	1038.509	24.2	VK7	YWN	967.22	9.54		90	R13
23:10:33	1038.509	24.3	VK7	YWN	967.221	9.59		90	R13
23:10:43	1038.509	24.3	VK7	YWN	967.221	9.73		90	R13
23:10:53	1038.509	24.3	VK7	YWN	967.222	9.93		90	R13
23:11:03	1038.509	24.2	VK7	YWN	990.516	9.91	B5		9
23:11:13	1038.509	24	VK7	YWN	990.516	10	B5		9
23:11:23	1038.509	23.8	VK7	YWN	990.516	10.1	B5		9
23:11:33	1038.509	23.6	VK7	YWN	990.516	10	B5		9
23:11:43	1038.509	23.2	VK7	YWN	990.516	9.84	B5		9
23:11:53	1038.509	22.7	VK7	YWN	990.381	10.9	D9		9
23:12:03	1038.508	22.1	VK7	YWN	990.381	11.2	D9		9
23:12:13	1038.51	21.3	VK7	YWN	990.382	11.3	D8		9
23:12:23	1038.511	20.4	VK7	YWN	990.382	11.3	D8		9
23:12:33	1038.508	19.2	VK7	YWN	990.382	11.2	D8		9
23:12:43	1073.79	18	UIE	MO~	990.382	11	D8		9
23:12:53	1073.79	18.9	UIE	MO~	990.383	10.8	D8		9
23:13:03	1073.79	19.8	UIE	MO~	990.383	10.4	D8		9
23:13:13	1073.791	20.5	UIE	MO~	988.143	10.2		23	12
23:13:23	1073.791	21.1	UIE	MO~	988.143	10.5		23	12
23:13:33	1073.791	21.6	UIE	MO~	988.143	10.6		23	12
23:13:43	1073.791	22	UIE	MO~	988.143	10.7		23	12
23:13:53	1073.791	22.3	UIE	MO~	988.143	10.6		23	12
23:14:03	1073.791	22.5	UIE	MO~	988.143	10.3		23	12
23:14:13	1073.791	22.6	UIE	MO~	988.143	9.88		23	12
23:14:23	1073.791	22.7	UIE	MO~	988.143	9.24		23	12
23:14:33	1073.791	22.8	UIE	MO~	986.146	9.18	2F		14
23:14:43	1073.791	22.8	UIE	MO~	986.146	9.53	2F		14
23:14:53	1073.791	22.8	UIE	MO~	986.144	9.73	2F		14
23:15:03	1073.791	22.9	UIE	MO~	970.471	9.83	3C	R10	
23:15:13	1073.791	22.9	UIE	MO~	970.471	10.1	3C	R10	
23:15:23	1073.791	23	UIE	MO~	970.471	10.3	3C	R10	
23:15:33	1073.791	23	UIE	MO~	970.471	10.3	3C	R10	
23:15:43	1073.791	23.1	UIE	MO~	970.471	10.2	3C	R10	
23:15:53	1073.791	23.2	UIE	MO~	970.471	9.95	3C	R10	
23:16:03	1073.791	23.2	UIE	MO~	970.471	9.51	3C	R10	
23:16:13	1073.791	23.3	UIE	MO~	986.928	9.82		62	13
23:16:23	1073.791	23.2	UIE	MO~	986.929	10.3		61	13
23:16:33	1073.791	23.1	UIE	MO~	986.929	10.7		61	13
23:16:43	1073.791	22.9	UIE	MO~	986.929	11		61	13
23:16:53	1073.79	22.5	UIE	MO~	986.929	11.2		61	13
23:17:03	1073.79	22.1	UIE	MO~	986.929	11.2		61	13
23:17:13	1073.79	21.5	UIE	MO~	986.929	11.1		61	13
23:17:23	1073.79	20.7	UIE	MO~	986.929	10.7		61	13

23:17:33	1073.79	19.7	UIE	MO~	986.93	10.2	61	13
23:17:43	1038.508	19.8	VK7	YWN	986.932	9.85	61	13
23:17:53	1038.508	21.4	VK7	YWN	994.916	9.39	34	5
23:18:03	1038.508	22.7	VK7	YWN	994.916	9.39	34	5
23:18:13	1038.508	23.8	VK7	YWN	988.638	10.1	A1	11
23:18:23	1038.508	24.8	VK7	YWN	988.638	10.2	A1	11
23:18:33	1038.508	25.6	VK7	YWN	981.961	9.56	78	18
23:18:43	1038.508	26.2	VK7	YWN	981.961	9.84	78	18
23:18:53	1038.509	26.8	VK7	YWN	981.961	9.97	78	18
23:19:03	1038.509	27.3	VK7	YWN	981.961	9.94	78	18
23:19:13	1038.509	27.6	VK7	YWN	961.029	9.41	E7	R19
23:19:23	1038.509	27.9	VK7	YWN	961.029	9.67	E7	R19
23:19:33	1038.509	28.2	VK7	YWN	961.029	9.82	E7	R19
23:19:43	1038.509	28.3	VK7	YWN	961.029	9.87	E7	R19
23:19:53	1038.509	28.4	VK7	YWN	961.029	9.82	E7	R19
23:20:03	1038.509	28.5	VK7	YWN	993.202	9.88	F5	6
23:20:14	1038.509	28.6	VK7	YWN	993.202	9.99	F5	6
23:20:24	1038.509	28.6	VK7	YWN	993.201	10	F5	6
23:20:34	1038.509	28.6	VK7	YWN	992.509	10.6	AB	7
23:20:44	1038.509	28.6	VK7	YWN	992.509	10.8	AB	7
23:20:54	1038.509	28.6	VK7	YWN	992.509	10.9	AB	7
23:21:04	1038.509	28.5	VK7	YWN	992.509	10.7	AB	7
23:21:14	1038.509	28.4	VK7	YWN	992.509	10.4	AB	7