

Exhibit C
PETITION FOR WAIVER OF SECTION 25.137 AND 25.114 AND OF
THE U.S. TABLE OF FREQUENCY ALLOCATIONS

I. TO THE EXTENT THEY APPLY, GOOD CAUSE EXISTS FOR A WAIVER OF CERTAIN PORTIONS OF SECTIONS 25.137 AND 25.114

Universal Space Network, Inc. (USN) is provided limited legal and technical information for the Sentinels-1A Satellite.¹ Pursuant to Section 25.137 of the Federal Communications Commission's ("Commission" or "FCC") rules, the same technical information required by Section 25.114 for U.S.-licensed space station, and certain legal information, must be submitted by earth station applicants "requesting authority to operate with a non-U.S. licensed space station to serve the United States..."² USN seeks authority to support the ranging campaign of Sentinels-1A, not commercial service to the United States, and thus believes that Section 25.137 does not apply.

To the extent the Commission determines, however, that USN's request for authority to provide a ranging campaign on a special temporary basis is a request to serve the United States with a non-U.S.-licensed satellite, USN respectfully requests a waiver of Sections 25.137 and 25.114 of the Commission's rules, to the extent that USN has not herein provided the information required by these rules.³ The Commission may grant a waiver for good cause shown.⁴ A waiver is therefore appropriate if special circumstances warrant a deviation from the general rule, and such a deviation will serve the public interest.

In this case, good cause for a waiver of portions of Section 25.114 exists. USN seeks authority only to conduct a ranging campaign for Sentinels-1A. Thus, any information sought by Section 25.114 that is not relevant to the ranging – e.g., antenna patterns, energy and propulsion and orbital debris - USN does not have. In addition, USN would not easily be able to obtain such information because USN is not the operator of the Sentinels-1A satellite, nor is USN in contractual privity with that operator. Rather, USN has contracted with Swedish Space Corporation, Solona Sweden (SSC) to support the ranging portion in S-Band of the Sentinels-1A satellite in preparation of the Sentinels-2A satellite being launch in May 2015.

As evidenced by the Comsearch report attached to this request, USN has coordinated the test of the Sentinels-1A satellite with potentially affected terrestrial operators. Moreover, as with any STA, USN will conduct the test on an unprotected, non-interference basis to government operations.

¹ FCC Form 312 Section B

² 47 C.F.R. § 25.137(a)

³ 47 C.F.R. §§25.137 and 25.114

⁴ 47 C.F.R. §1.3

Because it is not relevant to the service for which USN seeks authorization, and because obtaining the information would be a hardship, USN seeks a waiver of all the technical and legal information required by Section 25.114, to the extent it is not provided herein. As noted above, USN has provided the required information to the extent that it is relevant to the ranging service for which USN seeks authorization.

Good cause also exists to waive portions of Section 25.137, to the extent the information required is not herein provided. Section 25.137 is designed to ensure that “U.S.-licensed satellite systems have effective competitive opportunities to provide analogous services” in other countries. Here, there is no service being provided by the satellite; USN is providing TT&C while the satellite is on the way to its low earth orbit. Thus, the purpose of the information required by Section 25.137 is not implicated here. For example, Section 25.137(d) requires earth station applicants requesting authority to operate with a non-U.S.-licensed space station that is not in orbit and operating to post a bond.⁵ The underlying purpose in having to post a bond – i.e., to prevent warehousing of orbital locations by operators seeking to serve the United States – would not be served by requiring USN to post a bond in order to conduct the 7 days of LEOP support of the Sentinels-1A satellite.

It is USN’s understanding that Sentinels-1A is licensed by ESA (European Space Agency). Sentinels-1A is the first of the series spacecraft meant to serve the EU. Thus, the purpose of Section 25.137 – to ensure that U.S. satellite operators enjoy “effective competitive opportunities” to serve foreign markets and to prevent warehousing of orbital locations service the United States – will not be undermined by grant of this waiver request.

Finally, USN notes that it expects to communicate with the Sentinels-1A satellite using its U.S. earth station for a period of 60 days. Requiring USN to obtain technical and legal information from an unrelated party, where there is no risk of interference and the operation will cease within 60 days would pose undue hardship without serving underlying policy objectives. Given these particular facts, the waiver sought herein is appropriate.

⁵ 47 C.F.R. §25.137(d)(4)

II. GOOD CAUSE EXISTS FOR A WAIVER OF THE UNITED STATES TABLE OF FREQUENCY ALLOCATIONS

USN further requests a waiver of the United States Table of Frequency Allocations ("U.S. Table") as described in section 2.106 of the rules for the frequency bands 2025 – 2110 MHz (Earth-to-Space) and 2200 – 2290 MHz (Space-to-Earth).⁶ Section footnotes allow for non-federal Government use of these bands in the United States on a case-by-case non-interference basis. Such use by USN necessitates a waiver of the U.S. Table.

Good cause exists to grant USN a limited waiver of the U.S. Table to allow the ranging support of the Sentinels-1A satellite. In considering request for case-by-case spectrum uses, the Commission has indicated that it would generally grant such waivers "where there is little potential for interference into any service authorized under the Table of Frequency Allocations and when the case-by-case operator accepts any interference from authorized services."⁷ USN will coordinate with other parties operating communication systems in compliance with the Table of Frequency Allocations to ensure that no harmful interference is caused. USN seeks to operate only pursuant to special temporary authorization and thus agrees to accept any interference from authorized services. In summary, USN's operation on a non-interference, non-protected basis support waiver of the U.S. Table.

⁶ 47 C.F.R. §2.106

⁷ Previously approved STA's for Universal Space Network SES-STA-20020725-01174; SES-STA-20021112-02008; SES-STA-20040315-00475

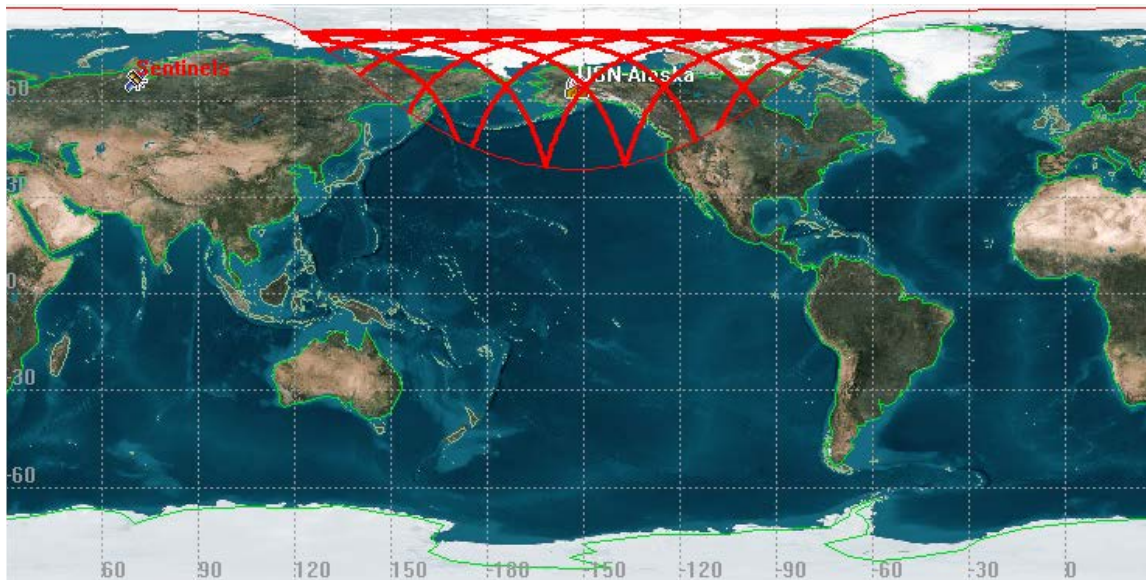
USN Calibration support using Sentinels-1A from Alaska

USN will be supporting the Sentinels-2A LEOP from Alaska in June 2015. In preparation for this launch ESA and CNES have requested ranging calibration tests using the on orbit Sentinels-1A spacecraft. Sentinels-1A is the first in a series of Synthetic Aperture Radar (SAR) earth observation science satellites launched by ESA to serve the European Union. Sentinels-1A was launched from the CNES space center in Kourou French Guiana on March 28th, 2014. The Sentinels-1A spacecraft was supported by the USN Alaska ground station using a downlink frequency = 2254.099 MHz and uplink = 2075.650 MHz, and has been fully coordinated by Comsearch.

The calibration campaign is scheduled to be conducted for approximately 8 days, spread over a 60 day period before the launch of Sentinels-2A scheduled for June 11th, 2015. The exact pass schedule is still TBD, but for planning purposes there are eight (8) expected blocks of passes described below using the current Sentinels-1A TLE. It is expected that only two passes in each block will be supported for a nominal total of sixteen (16) passes for the entire calibration campaign.

SENTINEL-1A

```
1 39634U 14016A 15091.14425903 -.00000123 00000-0 -16431-4 0 9998  
2 39634 98.1812 99.3112 0001288 81.2373 278.9003 14.59197290 52850
```



USN Alaska coverage of Sentinels (typical 1 day passes from 14 April – 4 June 2015)

USN Alaska possible passes for Sentinels-1A 14 Apr thru 4 Jun 2015 UTC

Block #1 potential pass times (only 2 will be selected)

Start Time (UTCG)	Stop Time (UTCG)
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14 Apr 2015 14:27:23	14 Apr 2015 14:38:06
14 Apr 2015 16:04:57	14 Apr 2015 16:18:34
14 Apr 2015 17:42:44	14 Apr 2015 17:56:38
14 Apr 2015 19:20:22	14 Apr 2015 19:32:57
14 Apr 2015 20:57:26	14 Apr 2015 21:08:23
14 Apr 2015 22:33:31	14 Apr 2015 22:44:07
15 Apr 2015 00:08:55	15 Apr 2015 00:20:51
15 Apr 2015 01:44:47	15 Apr 2015 01:58:20
15 Apr 2015 03:22:08	15 Apr 2015 03:36:06
15 Apr 2015 05:01:38	15 Apr 2015 05:13:48
15 Apr 2015 06:44:27	15 Apr 2015 06:50:37
15 Apr 2015 13:31:02	15 Apr 2015 13:37:45
15 Apr 2015 16:45:42	15 Apr 2015 16:59:41
15 Apr 2015 18:23:28	15 Apr 2015 18:36:56
15 Apr 2015 20:00:55	15 Apr 2015 20:12:46
15 Apr 2015 21:37:36	15 Apr 2015 21:48:10

Block #2 potential pass times (only 2 will be selected)

Start Time (UTCG)	Stop Time (UTCG)
19 Apr 2015 02:49:30	19 Apr 2015 03:03:31
19 Apr 2015 04:28:12	19 Apr 2015 04:41:17
19 Apr 2015 06:09:38	19 Apr 2015 06:18:38
19 Apr 2015 14:35:30	19 Apr 2015 14:46:37
19 Apr 2015 16:13:07	19 Apr 2015 16:26:51
19 Apr 2015 17:50:54	19 Apr 2015 18:04:44
19 Apr 2015 19:28:30	19 Apr 2015 19:40:57
19 Apr 2015 21:05:30	19 Apr 2015 21:16:21
19 Apr 2015 22:41:30	19 Apr 2015 22:52:09
20 Apr 2015 00:16:53	20 Apr 2015 00:28:58
20 Apr 2015 01:52:51	20 Apr 2015 02:06:29
20 Apr 2015 03:30:21	20 Apr 2015 03:44:16
20 Apr 2015 05:10:04	20 Apr 2015 05:21:57
20 Apr 2015 06:53:21	20 Apr 2015 06:58:31
20 Apr 2015 13:39:02	20 Apr 2015 13:46:31
20 Apr 2015 15:16:07	20 Apr 2015 15:28:48
20 Apr 2015 16:53:52	20 Apr 2015 17:07:53
20 Apr 2015 18:31:37	20 Apr 2015 18:44:59
20 Apr 2015 20:09:01	20 Apr 2015 20:20:44
20 Apr 2015 21:45:38	20 Apr 2015 21:56:10

Block #3 potential pass times (only 2 will be selected)

Start Time (UTCG)	Stop Time (UTCG)
28 Apr 2015 02:25:11	28 Apr 2015 02:39:07
28 Apr 2015 04:03:21	28 Apr 2015 04:16:54
28 Apr 2015 05:43:59	28 Apr 2015 05:54:26
28 Apr 2015 14:11:15	28 Apr 2015 14:21:06
28 Apr 2015 15:48:43	28 Apr 2015 16:02:05
28 Apr 2015 17:26:30	28 Apr 2015 17:40:29

28 Apr 2015 19:04:11	28 Apr 2015 19:17:03
28 Apr 2015 20:41:23	28 Apr 2015 20:52:33
28 Apr 2015 22:17:38	28 Apr 2015 22:28:09
28 Apr 2015 23:53:04	29 Apr 2015 00:04:44
29 Apr 2015 01:28:47	29 Apr 2015 01:42:07
29 Apr 2015 03:05:51	29 Apr 2015 03:19:52
29 Apr 2015 04:44:56	29 Apr 2015 04:57:37
29 Apr 2015 06:27:00	29 Apr 2015 06:34:44
29 Apr 2015 13:15:19	29 Apr 2015 13:20:05
29 Apr 2015 14:51:47	29 Apr 2015 15:03:33
29 Apr 2015 16:29:28	29 Apr 2015 16:43:22
29 Apr 2015 18:07:14	29 Apr 2015 18:20:55
29 Apr 2015 19:44:46	29 Apr 2015 19:56:55
29 Apr 2015 21:21:37	29 Apr 2015 21:32:15
29 Apr 2015 22:57:27	29 Apr 2015 23:08:16

Block #4 potential pass times (only 2 will be selected)

Start Time (UTCG)	Stop Time (UTCG)
6 May 2015 01:20:49	6 May 2015 01:34:02
6 May 2015 02:57:44	6 May 2015 03:11:45
6 May 2015 04:36:37	6 May 2015 04:49:31
6 May 2015 06:18:22	6 May 2015 06:26:46
6 May 2015 14:43:42	6 May 2015 14:55:11
6 May 2015 16:21:21	6 May 2015 16:35:11
6 May 2015 17:59:08	6 May 2015 18:12:54
6 May 2015 19:36:42	6 May 2015 19:49:01
6 May 2015 21:13:38	6 May 2015 21:24:24
6 May 2015 22:49:33	6 May 2015 23:00:17
7 May 2015 00:24:56	7 May 2015 00:37:11
7 May 2015 02:01:00	7 May 2015 02:14:44
7 May 2015 03:38:40	7 May 2015 03:52:31
7 May 2015 05:18:35	7 May 2015 05:30:17
7 May 2015 13:47:08	7 May 2015 13:55:20
7 May 2015 15:24:21	7 May 2015 15:37:11
7 May 2015 17:02:07	7 May 2015 17:16:09
7 May 2015 18:39:51	7 May 2015 18:53:07
7 May 2015 20:17:12	7 May 2015 20:28:47
7 May 2015 21:53:43	7 May 2015 22:04:14

Block #5 potential pass times (only 2 will be selected)

Start Time (UTCG)	Stop Time (UTCG)
13 May 2015 01:12:51	13 May 2015 01:25:57
13 May 2015 02:49:38	13 May 2015 03:03:40
13 May 2015 04:28:20	13 May 2015 04:41:26
13 May 2015 06:09:47	13 May 2015 06:18:47
13 May 2015 14:35:39	13 May 2015 14:46:46
13 May 2015 16:13:15	13 May 2015 16:27:06
13 May 2015 17:51:03	13 May 2015 18:04:53
13 May 2015 19:28:38	13 May 2015 19:41:06
13 May 2015 21:05:38	13 May 2015 21:16:30

13 May 2015 22:41:38 13 May 2015 22:52:18

Block #6 potential pass times (only 2 will be selected)

Start Time (UTCG)	Stop Time (UTCG)
19 May 2015 02:01:05	19 May 2015 02:14:50
19 May 2015 03:38:45	19 May 2015 03:52:37
19 May 2015 05:18:41	19 May 2015 05:30:16
19 May 2015 13:47:14	19 May 2015 13:55:26
19 May 2015 15:24:27	19 May 2015 15:37:12
19 May 2015 17:02:12	19 May 2015 17:16:15
19 May 2015 18:39:56	19 May 2015 18:53:12
19 May 2015 20:17:18	19 May 2015 20:28:53
19 May 2015 21:53:49	19 May 2015 22:04:20
19 May 2015 23:29:23	19 May 2015 23:40:39
20 May 2015 01:04:55	20 May 2015 01:17:53
20 May 2015 02:41:34	20 May 2015 02:55:34
20 May 2015 04:20:05	20 May 2015 04:33:21
20 May 2015 06:01:15	20 May 2015 06:10:47
20 May 2015 14:27:36	20 May 2015 14:38:21
20 May 2015 16:05:10	20 May 2015 16:18:49
20 May 2015 17:42:58	20 May 2015 17:56:52
20 May 2015 19:20:35	20 May 2015 19:33:11
20 May 2015 20:57:39	20 May 2015 21:08:34

Block #7 potential pass times (only 2 will be selected)

Start Time (UTCG)	Stop Time (UTCG)
27 May 2015 02:33:31	27 May 2015 02:47:29
27 May 2015 04:11:51	27 May 2015 04:25:17
27 May 2015 05:52:45	27 May 2015 06:02:46
27 May 2015 14:19:34	27 May 2015 14:29:54
27 May 2015 15:57:05	27 May 2015 16:10:37
27 May 2015 17:34:53	27 May 2015 17:48:50
27 May 2015 19:12:32	27 May 2015 19:25:16
27 May 2015 20:49:40	27 May 2015 21:00:44
27 May 2015 22:25:50	27 May 2015 22:36:24
28 May 2015 00:01:14	28 May 2015 00:13:03
28 May 2015 01:37:02	28 May 2015 01:50:30
28 May 2015 03:14:14	28 May 2015 03:28:15
28 May 2015 04:53:32	28 May 2015 05:05:59
28 May 2015 06:35:58	28 May 2015 06:42:55
28 May 2015 13:23:23	28 May 2015 13:29:16
28 May 2015 15:00:08	28 May 2015 15:12:14
28 May 2015 16:37:51	28 May 2015 16:51:48
28 May 2015 18:15:37	28 May 2015 18:29:12
28 May 2015 19:53:06	28 May 2015 20:05:07
28 May 2015 21:29:52	28 May 2015 21:40:30
28 May 2015 23:05:38	28 May 2015 23:16:33

Block #8 potential pass times (only 2 will be selected)

Start Time (UTCG)	Stop Time (UTCG)
3 Jun 2015 00:49:04	3 Jun 2015 01:01:46

3 Jun 2015 02:25:29	3 Jun 2015 02:39:25
3 Jun 2015 04:03:39	3 Jun 2015 04:17:12
3 Jun 2015 05:44:17	3 Jun 2015 05:54:45
3 Jun 2015 14:11:33	3 Jun 2015 14:21:26
3 Jun 2015 15:49:01	3 Jun 2015 16:02:24
3 Jun 2015 17:26:48	3 Jun 2015 17:40:48
3 Jun 2015 19:04:29	3 Jun 2015 19:17:21
3 Jun 2015 20:41:40	3 Jun 2015 20:52:55
3 Jun 2015 22:17:56	3 Jun 2015 22:28:28

Flux Density impinging on the ground in Alaska from Sentinels-1A

The Flux density is calculated as:

$$\text{Flux density} = \text{EIRP} \div (4 \pi Rse^2)$$

Where **Rse** is the distance from spacecraft to the ground.

Where **EIRP** is the Effective Isotropic Radiated Power of the Spacecraft.

Data from the spacecraft vendor indicates that the maximum EIRP of Sentinels-1A is -8.83 dBW. The altitude (and thus the closest distance to earth during an overhead pass) is = 692 Km.

Converting -8.83 dBW to scalar watts = 0.130 watts transmitted at 2254.099 MHz

Therefore:

$$\text{Flux density} = 0.13 \div (4 \pi * 692,000 \text{ meters}^2)$$

Flux density = 2.160 x 10⁻¹⁴ Watts/meter²

Or

Flux density = 2.160 x 10⁻¹⁵ mW/cm²