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| **World Radiocommunication Conference (WRC-19) Sharm el-Sheikh, Egypt, 28 October – 22 November 2019** |  |
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| PLENARY MEETING | **Addendum 2 to Document 108-E** |
|  | **9 October 2019** |
|  | **Original: English** |
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| Slovenia (Republic of) | |
| Proposals for the work of the conference | |
| Proposal to exclude the Slovenian NEMO-HD non-geostationary satellite from possible e.i.r.p. limits in the frequency band 401-403 MHz, likely to be introduced under WRC-19 agenda item 1.2 | |
| Agenda item 1.2 | |

1.2 to consider in-band power limits for earth stations operating in the mobile-satellite service, meteorological-satellite service and Earth exploration-satellite service in the frequency bands 401-403 MHz and 399.9-400.05 MHz, in accordance with **Resolution 765 (WRC-15)**;

# 1 Background

## 1.1 NEMO-HD non-geostationary satellite network

On 12 April 2013, Slovenia submitted the Advance Publication Information (API) of the NEMO‑HD non-geostationary satellite network, which was published as API/8329 in BR IFIC 2749 dated 23 July 2013.

Based on the comments received from other administrations and subsequent bilateral discussions, Slovenia modified some of the initial parameters of this satellite network, which is reflected in API/A/8329 MOD-1 published in BR IFIC 2769 dated 13 May 2014.

From that time on, the satellite operator contracted for the manufacturing and launch of the satellite.

Slovenia then sent the notification information under RR No.**11.25** on 28 January 2016: Part I-S was published in BR IFIC 2815 dated 15 March 2016 and Part II-S in BR IFIC 2832 dated 8 November 2016. The notified frequency bands are the following: 401.98-402.02 MHz (Earth exploration-satellite service in the Earth-to-space direction), 2 209.872-2 210.128 MHz (space telemetry in the space-to-Earth direction) and 8 040-8 140 MHz (Earth exploration-satellite service in the space-to-Earth direction).

In the band 401.98-402.02 MHz, the notified carrier of 40 kHz has a maximum power level of 24 dBW (maximum power density level of −22 dBW/Hz) associated with a specific earth station located in Slovenia and having a maximum antenna gain of 23 dBi. On 19 April 2019, the Slovenian Administration was informed by the satellite operator that the launch of the NEMO-HD satellite was planned to occur on 26 August 2019. At the beginning of July 2019, information was received that the launch date was slightly shifted to 9 September 2019.

However, following the failure of the flight VV15 of the Vega launcher on 11 July 2019, the European Space Agency (ESA) informed the Ministry of Economic Development and Technology of the Republic of Slovenia that “*The cause of this failure is under investigation (an off-nominal propulsion phase occurred soon after the start of the Vega second stage Zefiro 23). With this failure, it is expected that the next Vega launch will not take place on 9 September as originally scheduled*.” The Slovenian administration then received further information that the launch of the rocket carrying the two Slovene small satellites, NEMO-HD and TRISAT, may occur in November 2019, but more likely at the beginning of 2020.

## 1.2 Possible e.i.r.p. limits in the frequency band 401-403 MHz under WRC-19 agenda item 1.2

The CPM Report to WRC-19 contains three Methods under WRC-19 agenda item 1.2 for the band 401-403 MHz. All of them propose to establish e.i.r.p. limits on earth stations operating in this band and contains specific waivers for satellite systems in the meteorological-satellite and the Earth exploration-satellite services that have been brought into use and for which complete notification information has been received by the Radiocommunication Bureau before 22 November 2019. The NEMO-HD satellite was designed by taking into account the waivers that should have applied to its operations.

# 2 *Force Majeure* affecting the launch of the NEMO-HD satellite network

On the basis of the Opinion of the ITU Legal Adviser on force majeure provided to the 60th Meeting of the Radio Regulations Board (10-14 September 2012) (see Revision 1 to [Document RRB12-2/INFO/2](https://www.itu.int/md/R12-RRB.12.2-INF-0002/en)), Slovenia provides below the reasons why the delayed launch and bringing into use of the NEMO-HD satellite network, due to the failure of the Vega flight VV15 on 10 July 2019 fulfils the conditions of *force majeure* for not being able to bring into use this satellite network before 22 November 2019.

1) **Condition 1**: The event must be beyond the control of the obligor and not self-induced.

As explained in section 1.1, the launch of the NEMO-HD satellite should have occurred at the end of August or beginning of September 2019. But the failure of the Vega flight VV15 on 10 July 2019 has caused the next Vega launch to not take place on 9 September 2019 as originally scheduled, but to more likely occur at the beginning of 2020. This failure and consequential delay is beyond the control of the obligor and not self-induced.

2) **Condition** **2**: The event constituting the *force majeure* must be unforeseen or, if it was foreseeable, must be inevitable or irresistible.

The initial launch was foreseen at the end of August 2019. The failure of Vega flight VV15 on 10 July 2019 was the first of this launcher so the launch failure was not foreseeable as neither the consequential delay is.

3) **Condition** **3**: The event must make it impossible for the obligor to perform its obligation.

If the NEMO-HD satellite is not launched, it can obviously not start operating the associated frequency assignments in accordance with RR No. **11.44**.

4) **Condition** **4**: A causal effective connection must exist between the event constituting *force majeure* and the failure by the obligator to fulfil the obligation. It must of course be made clear in this regard that the causal connection should not be the result of behaviour wilfully adopted by the obligor.

As mentioned above, without a successful launch before 22 November 2019, which is being delayed not because of the administration of Slovenia or the NEMO-HD satellite operator but due to the failure of a previous flight of the Vega launcher, it is not possible to bring into use the NEMO-HD satellite network before 22 November 2019.

# 3 Proposal

SVN/108/1

Based on the difficulties experienced by the Administration of Slovenia in bringing into use the frequency assignments to the NEMO-HD non-geostationary satellite network and noting that the Government of Slovenia is continuing to make tremendous efforts in order that the two small satellites are launched prior to 22 November 2019, Slovenia requests WRC-19 to exclude the NEMO-HD satellite network from the application of possible e.i.r.p. limits that WRC-19 may decide to implement in the frequency band 401-403 MHz under WRC-19 agenda 1.2 because a *force majeure* event prevented Slovenia to bring into use this satellite network before 22 November 2019.

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