**Jean-Luc Issler; CNES; 18 july 2021:**

Dear Martin, dear Kevin, dear all,

Please find here 1) some comments to continue to look for better understanding of CNES proposals, and then 2) comments to your proposal Martin, and then 3) new proposals taking into account you proposal Kevin:

1. **Comment to explain CNES proposals:**

Thank you very much Martin for expressing DLR support to respecting ITU RR in the Shielded Zone of the Moon. CNES think the 883 book is already well oriented in that respect. The specific issue related to the protection needed for the SFCG 2483.5-2500 MHz band is a different but specific issue :

Overlapping this 2483.5-2500 MHz critical band is compatible with RR in the Shielded Zone of the Moon, but if this band is overlapped by a wireless band, it could not anymore be used for PNT, and L-band PNT (which is the worst case scenario to “kill” Radio Astronomy continuum observation on the Shielded Zone of the Moon) should be the remaining scenario. This would be unacceptable for CNES, and that is why the following shall be a **normative** statement to have a consensus, to **protect** Radio Astronomy in the SZM from Adopters which could be tempted by overlapping the 2483.5-2500 MHz critical band (**as a reminder, RFM/SLR already officially mentioned this to SOIS Wireless WG in commenting the draft 883 red book the need to troncate the 2496-2620 MHz 3GPP band to protect the SFCG 2483.5-2500 MHz band, via a liaison statement**):

**Mandatorily normative statement in chapter 3 (revised version):**

In any case, radiated volontary emissions (in allocated channels) and unvolontary emissions (from corresponding spurious) made by RF wireless transmitting devices of all types in the lunar or martian environment, which would  cause frequency overlaps with the lunar and martian communication orbit to surface bands of ~~(1)~~ 2483.5-2500 MHz [33], [40]~~; or (2)~~**~~a~~**~~3.5 MHz upper guard band between 2500 MHz and 2503.5 MHz; or (3)  as well as the 3.5 MHz lower guard band between 2480 MHz and 2483.5 MHz [33], [40],~~ shall not be permitted.

The related SFCG  lower guard band [33], [40] protecting this orbit to surface band shall not be overlaped. The Adopter should also **define an upper guard band to protect this orbit to surface band.**

**Nota Bene: CNES could accept the statement to be non normative with 3.5 MHz guard bands, if NASA and CSA write an E-mail to CNES saying that NASA and CSA will not overlap the 2480-2503.5 MHz lunar and martian SFCG band with lunar wireless free space links, and will not promote such overlaping by third operators. Then, we would be more confident the CCSDS 883 red book would not create an important threat for Radio Astronomy on the Shielded Zone of the Moon, if this normative statement is not mentioned.**

[40] *Frequency assignment guidelines for communications in the Mars region*. Space Frequency Coordination Group. Recommendation SFCG 22-1R3. Reference [40] will become SFCG 22-1R4 when this SFCG Recommendation is revised.

**The agreed requirement which shall be added to section 3 state that:**

"**use of any frequency band**" shall be verified liaising with RFM WG before selecting any of non-SFCG wireless frequency band with a NOTE remarking that **"This recommended standard does not provide normative guidance in the frequency values of the permited bands to be used  in addition to applicable SFCG bands by the space systems using the wireless terrestrial standards covered in this book"**

**Nota Bene about what this requirement implies:** **“in addition to applicable SFCG bands”** makes (for CNES) possible the normative statement above related to **the 2483.5-2500 MHz band, which is the only SFCG band potentially overlapped by one of the numerous “non-SFCG compatible” wireless standards of the red book**, moreover by **severely threatening Radio Astronomy on the Shielded Zone of the Moon**. **Due to this specific uniqueness, in due to the mentioned threat, the said normative statement above in yellow related to the SFCG 2483.5-2500 MHz band is mandatory for CNES**, **and shall be separated in a specific paragraph**.

Comments on this issue highlighted several times would be appeciated

1. **comments to your proposal Martin**

We agree to assemble the different **normative** paragraphs as you propose, Martin, with one exception:

**Exception:** The paragraph above **in yellow** on the 2483.5-2500 MHz band, which is a very specific issue excluded by “**in addition to applicable SFCG bands**”, have to be excluded from the assembling, as justified above and hereafter.

Other comments in your text:

This recommended standard does not provide any normative guidance in the frequency values of the permitted bands **in addition to applicable SFCG bands by the space systems using the wireless terrestrial standards covered in this book. Consequently, the following implications for the frequency selection are to be followed:**

The frequency band choices for lunar **or martian** surface wireless transmissions could be impacted by ITU REC [38] and by the Radio Regulation [39] applicable in the Shielded Zone of the Moon (SZM). Therefore, **Adopters** must ensure compatibility with ITU Radio Regulations.

**🡺OK**

The "**use of any frequency band**" shall be verified liaising with RFM WG before selecting any of non-SFCG wireless frequency band.

**🡺 OK**

~~Special attention shall be given to the~~ **~~2483.5-2500 MHz band, which is the only SFCG band potentially overlapped by one of the numerous “non-SFCG compatible” wireless standards of the red book (see informational note in section … for more detail).~~**

**🡺 NOT OK:** shall be separate due to the very specific and unique issue as justified above, and shall be **normative** ( not an informational note which **would not protect** Radio Astronomy in the SZM **from the heavy threat** mentioned )

**Remark:** moreover, the proposed text here **highlight that most of the wireless standards of the red book are not SFCG-compatible**: this is true, I agree this to be mentioned elsewere (non normative note; not in this paragraph) in the red book

**Space Agencies** must ensure clearance for an SFCG Waiver when the chosen frequency band is not recommended in [33] **or in [40]**.

🡺 **OK**

A Frequency Usage Verification Procedure needs to be followed as it is defined by the responsible bodies, that can be SLS RLM WG.

🡺 **OK**

1. **new proposals taking into account you proposal Kevin:**

**To put at the end of paragraph 3.1 (Overview) one of the 2 version of the assembled paragraph**

**option 1:**

**This recommended standard does not provide any normative guidance in the frequency values of the permitted bands in addition to the applicable SFCG band by the space systems using the wireless terrestrial standards covered in this book. Consequently, the following implications for the frequency selection are to be followed:**

1. **The frequency band choices for lunar or martian surface wireless transmissions could be impacted by ITU REC [38] and by the Radio Regulation [39] applicable in the Shielded Zone of the Moon (SZM). Therefore, Adopters must ensure compatibility with ITU Radio Regulations.**
2. **The "use of any frequency band" shall be verified liaising with RFM WG before selecting any of non-SFCG wireless frequency band.**
3. **Space Agencies must ensure clearance for an SFCG Waiver when the chosen frequency band is not recommended in [33] or in [40].**
4. **A Frequency Usage Verification Procedure needs to be followed as it is defined by the responsible bodies, that can be SLS RLM WG.**

**option 2:**

**This recommended standard does not provide any normative guidance in the frequency values of the permitted bands [in addition to the applicable SFCG band to protect (2483.5-2500 MHz)] by the space systems using the wireless terrestrial standards covered in this book. Consequently, the following implications for the frequency selection are to be followed:**

1. **The frequency band choices for lunar or martian surface wireless transmissions could be impacted by ITU REC [38] and by the Radio Regulation [39] applicable in the Shielded Zone of the Moon (SZM). Therefore, Adopters must ensure compatibility with ITU Radio Regulations.**
2. **The "use of any frequency band" shall be verified liaising with RFM WG before selecting any of non-SFCG wireless frequency band.**
3. **Space Agencies must ensure clearance for an SFCG Waiver when the chosen frequency band is not recommended in [33] or in [40].**
4. **A Frequency Usage Verification Procedure needs to be followed as it is defined by the responsible bodies, that can be SLS RLM WG.**

In addition, the 3 partially redoundant paragraphs on this in chapter 3 are proposed to be removed.

The more important issue to reach consensus hopefully:

**Mandatorily normative statement in chapter 3 : in paragraph 3.3.1**

In any case, radiated volontary emissions (in allocated channels) and unvolontary emissions (from corresponding spurious) made by RF wireless transmitting devices of all types in the lunar or martian environment, which would  cause frequency overlaps with the lunar and martian communication orbit to surface bands of 2483.5-2500 MHz [33], [40] shall not be permitted. The related SFCG  lower guard band [33], [40] protecting this orbit to surface band shall not be overlaped. The Adopter should also define an upper guard band to protect this orbit to surface band**.**

For clarity, I updated the red book on CWE with these proposals, and I joint the corresponding extract of chapter 3 with all the proposed updates.

Looking forward a consensus, which imply an agreement on real protection of Radio Astronomy in the SZM by normatively not having any ambiguity on avoiding the overlapping of 2483.5-2500 MHz SFCG orbit to surface band in the CCSDS 883 bleu book.

VBR

Jean-Luc

**De :** Kevin K Gifford <kevin.gifford@colorado.edu>
**Envoyé :** jeudi 17 juin 2021 16:13
**À :** Martin.Drobczyk@dlr.de; Issler Jean-Luc <Jean-Luc.Issler@cnes.fr>; sois-wir@mailman.ccsds.org; peter.m.shames@jpl.nasa.gov
**Cc :** raymond.s.wagner@nasa.gov; chatwin.lansdowne-1@nasa.gov; stephen\_braham@sfu.ca; brian.cascarano@canada.ca
**Objet :** Re: AW: AW: AW: [EXTERNAL] Re: Updated CCSDS-883-0-R-0 on the CWE

Dear Martin, Dear All -

@Martin: Thank you for the suggested input.

As SOIS-WIR WG Chair, I would support Martin's proposal and I believe that NASA would support this proposal as well with the (Martin's) proposed text up front in Section 3.1.

@Jean-Luc: Can CNES accept Martin's proposal?

Thanks to all for the hard work and professionalism displayed dealing with this important concern.

Kevin

**From:** Martin.Drobczyk@dlr.de <Martin.Drobczyk@dlr.de>
**Sent:** Thursday, June 17, 2021 7:52 AM
**To:** Jean-Luc.Issler@cnes.fr <Jean-Luc.Issler@cnes.fr>; Kevin K Gifford <kevin.gifford@colorado.edu>; sois-wir@mailman.ccsds.org <sois-wir@mailman.ccsds.org>; peter.m.shames@jpl.nasa.gov <peter.m.shames@jpl.nasa.gov>
**Cc:** raymond.s.wagner@nasa.gov <raymond.s.wagner@nasa.gov>; chatwin.lansdowne-1@nasa.gov <chatwin.lansdowne-1@nasa.gov>; stephen\_braham@sfu.ca <stephen\_braham@sfu.ca>; brian.cascarano@canada.ca <brian.cascarano@canada.ca>
**Subject:** AW: AW: AW: AW: [EXTERNAL] Re: Updated CCSDS-883-0-R-0 on the CWE

Dear all,

I can confirm and support the CNES statement regarding the ITU Regulation concerning the Shielded side of the moon, since this is also the main concern by the German radio astronomers as from a statement made by our SFCG representative Mr. Ewald. So, it should be clarified “that using LTE on the moon is not violating the RR and this usage is compatible with existing regulation” as Mr. Ewald stated regarding this specific issue.

I am not sure if this is possible, but I would suggest to compress all relevant information to one statement, as all of them are connected to each other, and the reader (the later adaptor/ system architect) directly knows the conditions under which he needs  select the frequency band, who is responsible for what and which actions items he needs to work through. It is more clear to the reader and the most important information is at one place.  It would be maybe something like this:

This recommended standard does not provide any normative guidance in the frequency values of the permitted bands **in addition to applicable SFCG bands by the space systems using the wireless terrestrial standards covered in this book. Consequently, the following implications for the frequency selection are to be followed:**

1. The frequency band choices for lunar **or martian** surface wireless transmissions could be impacted by ITU REC [38] and by the Radio Regulation [39] applicable in the Shielded Zone of the Moon (SZM). Therefore, **Adopters** must ensure compatibility with ITU Radio Regulations.
2. The "**use of any frequency band**" shall be verified liaising with RFM WG before selecting any of non-SFCG wireless frequency band.
3. Special attention shall be given to the **2483.5-2500 MHz band, which is the only SFCG band potentially overlapped by one of the numerous “non-SFCG compatible” wireless standards of the red book (see informational note in section … for more detail).**
4. **Space Agencies** must ensure clearance for an SFCG Waiver when the chosen frequency band is not recommended in [33] **or in [40]**.
5. A Frequency Usage Verification Procedure needs to be followed as it is defined by the responsible bodies, that can be SLS RLM WG.

Best regards

Martin

**Von:** Issler Jean-Luc <Jean-Luc.Issler@cnes.fr>
**Gesendet:** Mittwoch, 16. Juni 2021 19:25
**An:** Drobczyk, Martin <Martin.Drobczyk@dlr.de>; kevin.gifford@colorado.edu; sois-wir@mailman.ccsds.org; peter.m.shames@jpl.nasa.gov
**Cc:** raymond.s.wagner@nasa.gov; chatwin.lansdowne-1@nasa.gov; stephen\_braham@sfu.ca; brian.cascarano@canada.ca
**Betreff:** RE: AW: AW: AW: [EXTERNAL] Re: Updated CCSDS-883-0-R-0 on the CWE

Dear Kevin, dear all,



Please find here the attached CNES answers and proposals, looking forward your understanding of CNES and Radio Astronomers high level concerns, and a consensus.

Have a nice day; VBR

Jean-Luc

**De :** Martin.Drobczyk@dlr.de <Martin.Drobczyk@dlr.de>
**Envoyé :** mercredi 16 juin 2021 07:50
**À :** kevin.gifford@colorado.edu; Issler Jean-Luc <Jean-Luc.Issler@cnes.fr>; sois-wir@mailman.ccsds.org; peter.m.shames@jpl.nasa.gov
**Cc :** raymond.s.wagner@nasa.gov; chatwin.lansdowne-1@nasa.gov; stephen\_braham@sfu.ca; brian.cascarano@canada.ca
**Objet :** AW: AW: AW: AW: [EXTERNAL] Re: Updated CCSDS-883-0-R-0 on the CWE

Hi all,

number 1 is a very important statement/requirement (maybe the most important) and already builds the framework for number 3 which can be from my point of view an informational note, as long as number 1 is a requirement. Because the statement in number 1 delegates the frequency selection and verification to the bodies and authorized representatives responsible for it. And it clearly and implicitly states, that this book recommends the wireless terrestrial standards but without any guarantee and authority to use them in the terrestrial bands, but instead be (always) compliant with any SFCG and SLS RFM decisions, clauses or normative statements regarding frequency selection.

For this reason, I would also agree with Kevin that number 2 is out of the scope of this document as it is already enclosed in the statement of number 1 “.. verified liaising with RFM WG..”, and the verification process needs to be established there.

Best regards

Martin

**Von:** Kevin K Gifford <kevin.gifford@colorado.edu>
**Gesendet:** Dienstag, 15. Juni 2021 18:07
**An:** Issler Jean-Luc <Jean-Luc.Issler@cnes.fr>; sois-wir@mailman.ccsds.org; Shames, Peter M (US 312B) <peter.m.shames@jpl.nasa.gov>
**Cc:** Ray Wagner <raymond.s.wagner@nasa.gov>; Lansdowne, Chatwin (JSC-EV811) <chatwin.lansdowne-1@nasa.gov>; Stephen Braham <stephen\_braham@sfu.ca>; Cascarano, Brian (ASC/CSA) <brian.cascarano@canada.ca>; Kevin K Gifford <kevin.gifford@colorado.edu>; Drobczyk, Martin <Martin.Drobczyk@dlr.de>
**Betreff:** Re: AW: AW: AW: [EXTERNAL] Re: Updated CCSDS-883-0-R-0 on the CWE

[ + Peter Shames ]

Dear Jean-Luc -

Thank you for your updated proposal.  I believe we are getting close to a resolution and again am very thankful to be addressing this issue with yourself and CNES.

Thanks also for acknowledging that CNES is aware of the directions provided by Peter Shames (CESG) to the SOIS-WIR WG on this issue.  Per Peter Shames' instructions, the CCSDS-883-0-R-0 document:

-- Shall state normatively that all spectrum coordination **must** go through the SLS-RFM and the SFCG

-- **Cannot** make any normative statements regarding frequency assignments

The SOIS-WIR counter proposal is as follows:

----- 1 -------

[Accept]

A requirement shall be added to section 3 to state that: "use of / allocation of frequencies" shall be verified liaising with RFM WG before selecting any of non-SFCG wireless frequency band with a NOTE remarking that "This recommended standard does not provide normative guidance in the frequency values of the permitted bands to be used by the wireless terrestrial standards in addition to applicable SFCG bands"

----- 2 -------

[Reject]

The added requirement shall be reflected in the PICS Annex by a relevant "Frequency Usage Verification Procedure" to be added to the existing Network Connectivity Verification Procedure, Network Performance Verification Procedure, QoS Verification Procedure.

Rationale: The CCSDS Yellow Book is required for interoperability conformance verifications.  A "SLS-RFM or SFCG" Frequency Verification Procedure is out of scope for CCDSD-883-0-R-0; SOIS-WIR firmly believes this procedure is in purview of SLS-RFM.

----- 3 -------

For the CNES proposed text below the SOIS-WIR WG will accept this text as an **Informational Note** but not as a Normative statement:

In any case, radiated volontary emissions (in allocated channels) and unvolontary emissions (from corresponding spurious) made by RF wireless transmitting devices of all types in the lunar or martian environment, which would  cause frequency overlaps with the lunar and martian communication orbit to surface bands of ~~(1)~~ 2483.5-2500 MHz [33], [40]~~; or (2)~~**~~a~~**~~3.5 MHz upper guard band between 2500 MHz and 2503.5 MHz; or (3)  as well as the 3.5 MHz lower guard band between 2480 MHz and 2483.5 MHz [33], [40],~~ shall not be permitted.

The related SFCG  lower guard band [33], [40] protecting this lunar and martian communication orbit to surface band shall not be overlaped. SFCG will define the related upper guard band [33], [40] after the publication of this Bleu Book. This upper guard band, when defined, shall not be overlaped. ~~By~~ Waiting the SFCG definition of this upper guard band, the Adopter should **define this upper guard band by using the “Frequency Usage Verification Procedure” of the PICS Annex.**

[40] *Frequency assignment guidelines for communications in the Mars region*. Space Frequency Coordination Group. Recommendation SFCG 22-1R3. Reference [40] will become SFCG 22-1R4 when this SFCG Recommendation will be edited.

Rationale: Per CESG instructions, no normative statements regarding spectrum bands, channels or guard bands are to be allowed.. in CCSDS-883-0-R-0.

The SOIS-WIR WG will publicize/discuss the above proposal with Peter Shames to ensure that our Working Groupo is properly following CESG expectations.

Jean-Luc: Would CNES accept the above proposal?

Thanks.

Kevin

**From:** SOIS-WIR <sois-wir-bounces@mailman.ccsds.org> on behalf of Issler Jean-Luc <Jean-Luc.Issler@cnes.fr>
**Sent:** Tuesday, June 15, 2021 7:04 AM
**To:** sois-wir@mailman.ccsds.org <sois-wir@mailman.ccsds.org>
**Subject:** [SOIS-WIR] TR: AW: AW: AW: [EXTERNAL] Re: Updated CCSDS-883-0-R-0 on the CWE

Dear all,

Please find here a wording for an updated proposal : modifications of the first paragraph are tracked, and a second paragraph has been added in order to not write any guard band bandwidth value (as proposed by Mr Shame in his E-mail bellow), and to not preclude about future SFCG decisions **while protecting Radio Astronomy**, this last point beeing as you know a very important challenge for CNES and the Radio Astronomers, very concerned about this guard band issue.

In any case, radiated volontary emissions (in allocated channels) and unvolontary emissions (from corresponding spurious) made by RF wireless transmitting devices of all types in the lunar or martian environment, which would  cause frequency overlaps with the lunar and martian communication orbit to surface bands of ~~(1)~~ 2483.5-2500 MHz [33], [40]~~; or (2)~~ **~~a~~** ~~3.5 MHz upper guard band between 2500 MHz and 2503.5 MHz; or (3)  as well as the 3.5 MHz lower guard band between 2480 MHz and 2483.5 MHz [33], [40],~~ shall not be permitted.

The related SFCG  lower guard band [33], [40] protecting this lunar and martian communication orbit to surface band shall not be overlaped. SFCG will define the related upper guard band [33], [40] after the publication of this Bleu Book. This upper guard band, when defined, shall not be overlaped. ~~By~~ Waiting the SFCG definition of this upper guard band, the Adopter should **define this upper guard band by using the “Frequency Usage Verification Procedure” of the PICS Annex.**

[40] *Frequency assignment guidelines for communications in the Mars region*. Space Frequency Coordination Group. Recommendation SFCG 22-1R3. Reference [40] will become SFCG 22-1R4 when this SFCG Recommendation will be edited.

What do you think please ?

What do you think about the update proposal of the note in blue bellow please ?

Following Mr Shame’s message bellow, and some discussions that occur, it is not clear enougth in the 883B red book weather the wireless architecture standard refering to a certain number of terrestrial wireless standards is normative regarding the wireless standard frequencies or not. According to Mr Shame, the wireless frequencies shall not be normative. To make this ambiguity desapear, CNES proposes to add in the normative chapter 3 the following:

**1)     A requirement shall be added to section 3 to state that:** "**use of / allocation of frequencies**" shall be verified liaising with RFM WG before selecting any of non-SFCG wireless frequency band with a NOTE remarking that **"This recommended standard does not provide normative guidance in the frequency values of the permited bands to be used by the wireless terrestrial standards in addition to applicable SFCG bands"**

**2) The added requirement shall be reflected in the PICS Annex by a relevant  "Frequency Usage Verification Procedure"** to be added to the existing Network Connectivity Verification Procedure, Network Performance Verification Procedure, QoS Verification Procedure.

What do you think about this proposal following Mr Shame’s remarks

Looking forward a consensus, in order to make all the CNES RIDs to have disposition, and to have a normative guard band text (*without any guard band bandwidth value* *as now wished*) letting a chance for Radio Astronomy continuum observations in the Shielded Zone of the Moon.

VBR

Jean-Luc

From:        "Shames, Peter M (US 312B)" <peter.m.shames@jpl.nasa.gov>
To:        "Gian Paolo Calzolari" <Gian.Paolo.Calzolari@esa.int>, "Gilles Moury" <Gilles.Moury@cnes.fr>, "Enrico.Vassallo@esa.int" <Enrico.Vassallo@esa.int>
Cc:        "Wilmot, Jonathan J. (GSFC-5820)" <jonathan.j.wilmot@nasa.gov>, "Wagner, Raymond S. (JSC-EV811)" <raymond.s.wagner@nasa.gov>, "Kevin K Gifford" <kevin.gifford@colorado.edu>, "Lee, Dennis K (US 332G)" <dennis.k.lee@jpl.nasa.gov>
Date:        09/06/21 23:58
Subject:        Potential SLS / RFM issue

Dear Gippo, Gilles, and Enrico,

I just had a discussion with a couple of the SOIS Wireless (WIR) WG guys, Gifford and Wagner.  I think that the major issues that I perceived, vis-à-vis handling their “near-by” link layer protocols in a fashion consistent with the rest of the space link protocols has been dealt with.  In the SANA we will treat them as two separate protocols from the rest of the SLS standards, and we will register the identifiers assigned by their “home” standards organizations in their own SANA SCID registries.

The reference to SANA SCID registries, of course, implies that they will also need to align with the Q-SCID frequency bands as well, and those are aligned with RFM WG and SFCG practices.  I do not believe that any of you have an issue with any of this.

The WG has experienced some push back, from both NASA and CNES members, regarding the inclusion of statements about frequency bands or frequency allocations in any bands.  I have advised the SOIS WIR to not provide any sort of normative guidance in this matter and to defer to the RFM WG for all questions regarding use of / allocation of frequencies.  This is under the assumption that you will, in turn, rely upon the SFCG to provide the formal guidance and frequency allocations in accordance with established international practices and regulations.

I am writing now just to ascertain that you all concur.  I believe that the SOIS WIR needs to  just acknowledge this situation and, for questions about frequency allocations, to guide the users of these standards to the RFM WG and the SFCG.

Do you agree?

Thanks, Peter

**De :** Issler Jean-Luc
**Envoyé :** mardi 8 juin 2021 19:15
**À :** 'Kevin K Gifford' <kevin.gifford@colorado.edu>
**Cc :** chatwin.lansdowne-1@nasa.gov; brian.cascarano@canada.ca; david.ni-1@nasa.gov; Andre.Luebken@dlr.de; warp <warp@polylab.sfu.ca>; Martin.Drobczyk@dlr.de; Ray Wagner <raymond.s.wagner@nasa.gov>
**Objet :** RE: AW: AW: AW: [EXTERNAL] Re: Updated CCSDS-883-0-R-0 on the CWE

Dear all, and thank you Stephen, Martin and Kevin for your updates

Please find here CNES proposal

In any case, radiated **volontary** emissions (in allocated channels**)** and **unvolontary emissions (**from corresponding spurious) made by RF wireless transmitting devices of all types in the lunar or martian environment, which **would**  cause frequency overlaps with the lunar and martian communication **orbit to surface** bands of (1) 2483.5-2500 MHz [33], [40]; or (2) **a** 3.5 MHz upper guard band between 2500 MHz and 2503.5 MHz; or (3)  as well as the 3.5 MHz lower guard band between 2480 MHz and 2483.5 MHz [33], [40], **shall** not be permitted.

Ref [40] is:

[40] *Frequency assignment guidelines for communications in the Mars region*. Space Frequency Coordination Group. Recommendation SFCG 22-1R3.

As already explained, for CNES, the 3GPP terrestrial standard in the 2496-2620 MHz band (not SFCG) cannot be normative (with the discussed band restriction), if the discussed bands to protect (orbit to surface band and its guard bands) are not normatively protected. This text shall therefore effectively be out of a NOTE.

We propose this text above to be just before the NOTEs of paragraph 3.1.1 GENERAL ( Alternatively, this text above could be just before the NOTE of paragraph 3.1 OVERVIEW )

Since the EARFCN paragraph is proposed to be not kept, the related references [40] and [41] on E UTRA appearing in this paragraph are proposed to be removed, and the martian SFCG doc would have reference [40].

We also propose to update the last NOTE of paragraph 3.1.1 as follows:

The frequency band choices for lunar **or martian** surface wireless transmissions could be impacted by ITU REC [38] and by the Radio Regulation [39] applicable in the Shielded Zone of the Moon (SZM).  **Adopters** must also ensure compatibility with ITU Radio Regulations,  and **Space Agencies** must ensure clearance for an SFCG Waiver when the chosen frequency band is not recommended in [33] **or in [40]**.

I uploaded on CWE a new version of the red book with all the proposed updates (without the ones **in green** that I realized after to be needed).

It is mandatory for CNES to have consensus on the proposals in this E-mail before our WG to submit to SESG a resolution for publication of 883-0-R-0 : looking forward a consensus.

Have a nice day/evening  VBR

Jean-Luc