

SE24 Meeting M78
Biel, 25 – 27 August 2014

M78_13R0_SE24

Date issued: 2014/08/07

Source: Low Power Radio Association

Status: For consideration

Subject: WI42: LPRA 862-870MHz refarming survey

Password protected: yes No

Summary:

A survey was organised by LPRA in order to collect SRD industry views on the current 862-870MHz band SE24 refarming action.

An electronic survey was organised from May until End of July 2014

Proposal:

For consideration and action in scenario definition for generic SRDs

Background:

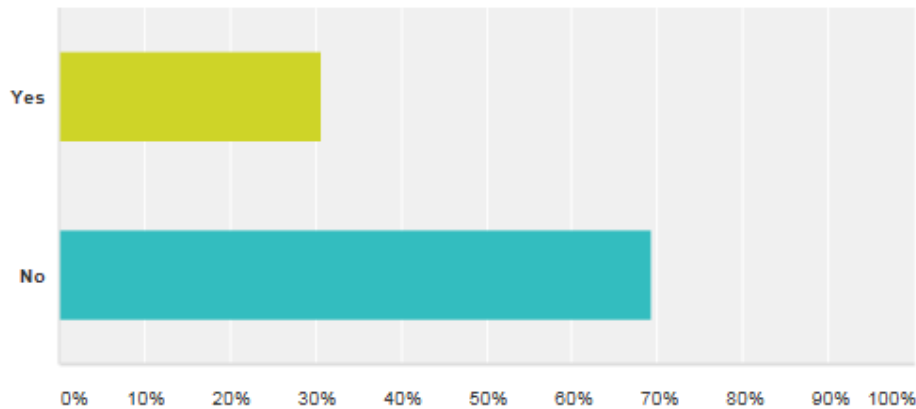
WI42 drafting work

The survey was organized around 10 questions about future changes in the range 862-870MHz.

14 replies from industry were received.

Generic approach

Q1: Would you support the removal of all Notes in REC70.03 Annex 1?



Band 862-863MHz

Q2: What is your preferred option for 862-863MHz arrangement?

Proposals	Preferred	May be	No
Adaptive Power Control, 10% DC+LBT AFA, max OBW 1MHz			X
500mW APC, DC no restriction, max OBW 1MHz			X
500mW APC, DC no restriction, max OBW 500kHz			X
500mW APC, DC no restriction, max OBW 200kHz			X
100mW , 10%DC+LBT/AFA, max OBW 1MHz	X		
100mW , DC no restriction, max OBW 1MHz			X
100mW , DC no restriction, max OBW 500kHz		X	
100mW , DC no restriction, max OBW 200kHz		X	

Note: One green box means the highest number of supporters.

Two green boxes means that there was the same number of supporters (equal).

Q3: Do you intend to use 862-863MHz?

If yes, what are your proposed parameters for Power, duty cycle/LBT+AFA and Max Occupied Bandwidth?

No, because too close to LTE: 72%

Proposals: 21%

- 25mW / 10% DC / no LBT / max. 1 MHz OBW but subchannels possible
- 500mW, 100% DC, Max OBW 1 MHz
- Extend existing 863 MHz edge down to 862

Other: 7%

- "under investigation" - sub-band shall be focus for innovations / new systems and products - one possible use could be IEEE 802.11ah - preferably 100mW max. or 500mW w/ APC using CCA or LBT/AFA - basically use (this) NEW sub-band for NEW services in order to maintain existing services and products on the market

Band 863-865MHz

Q4: What is your preferred option for 863-865MHz?

Proposals	Preferred	May be	No
500mW APC, 10% DC+LBT/AFA, max OBW 1MHz			X
500mW APC, 10% DC+LBT AFA, max OBW 2MHz			X
500mW APC, 10% DC+LBT AFA, max OBW 500kHz			X
500mW APC, 10% DC+LBT AFA, max OBW 200kHz		X	
100mW , 10%DC+LBT/AFA, max OBW 2MHz			X
100mW , 10%DC+LBT/AFA, max OBW 1MHz	X	X	
100mW , DC no restriction but LBT/AFA, max OBW 1MHz			X
100mW , DC no restriction, max OBW 500kHz			X
100mW , DC no restriction, max OBW 200kHz			X
Existing parameters 25mW, 0.1%DC+LBT AFA, max OBW 2MHz	X		

Note: One green box means the highest number of supporters.

Two green boxes means that there was the same number of supporters (equal).

Q5: Do you intend to use 863-865MHz?

If yes, what are your proposed parameters for Power, Duty Cycle/LBT+AFA and Max Occupied Bandwidth?

No: 43%

Proposals: 43%

- Wireless headphones and microphones, 10mW, <=100% DC, Bandwidth 300kHz (headphones) or 200kHz (microphone)
- Maybe, but risk of permanent interferer has to be solved; Proposed parameters Power 100mW; DC 1%; OBW 500kHz
- 25mW / 10% DC / no LBT / max. 1 MHz OBW but sub channels possible
- 25mW to 100mW LBT+AFA - 300kHz
- 0.1 mW, LBT+AFA OBW 200 kHz your options are very biased towards higher power wideband devices
- 500mW, 100% DC, 1 MHz

Other: 14%

- Maybe... short video in residential with decent quality and range
- "under investigation" - basically maintain existing services and products on the market and use (other) NEW sub-bands for NEW services

Band 865-868MHz

Q6: What is your preferred option for 865-868MHz?

Proposals	Preferred	May be	No
500mW APC, 10% DC+LBT/AFA, max OBW 3MHz			X
500mW APC, 10% DC+LBT AFA, max OBW 2MHz			X
500mW APC, 10% DC+LBT AFA, max OBW 1MHz			X
500mW APC, 10% DC+LBT AFA, max OBW 500kHz			X
500mW APC, 10% DC+LBT AFA, max OBW 200kHz			X
100mW , 10%DC+LBT/AFA, max OBW 3MHz			X
100mW , 10%DC+LBT/AFA, max OBW 2MHz			X
100mW , no restriction but LBT/AFA, max OBW 3MHz			X
100mW , no restriction but LBT/AFA, max OBW 2MHz			X
100mW , no restriction but LBT/AFA, max OBW 1MHz			X
100mW , no restriction but LBT/AFA, max OBW 500kHz			X
100mW , no restriction but LBT/AFA, max OBW 200kHz			X
100mW , 10%DC+LBT/AFA, max OBW 3MHz			X
100mW , 10%DC+LBT/AFA, max OBW 2MHz			X
25mW , no restriction but LBT/AFA, max OBW 3MHz			X
25mW , no restriction but LBT/AFA, max OBW 2MHz		X	
25mW , no restriction but LBT/AFA, max OBW 1MHz		X	
25mW , no restriction but LBT/AFA, max OBW 500kHz		X	
25mW , no restriction but LBT/AFA, max OBW 200kHz	X		X
Existing parameters 25mW, 0.1%DC+LBT AFA, max OBW 3MHz		X	
Existing parameters 10mW, 1%DC+LBT AFA, max OBW 3MHz			X

Note: One green box means the highest number of supporters.

Two green boxes means that there was the same number of supporters (equal).

Q7: Do you intend to use 865-868MHz?

If yes, what are your proposed parameters for Power, Duty Cycle/LBT+AFA and Max Occupied Bandwidth?

No: 43%

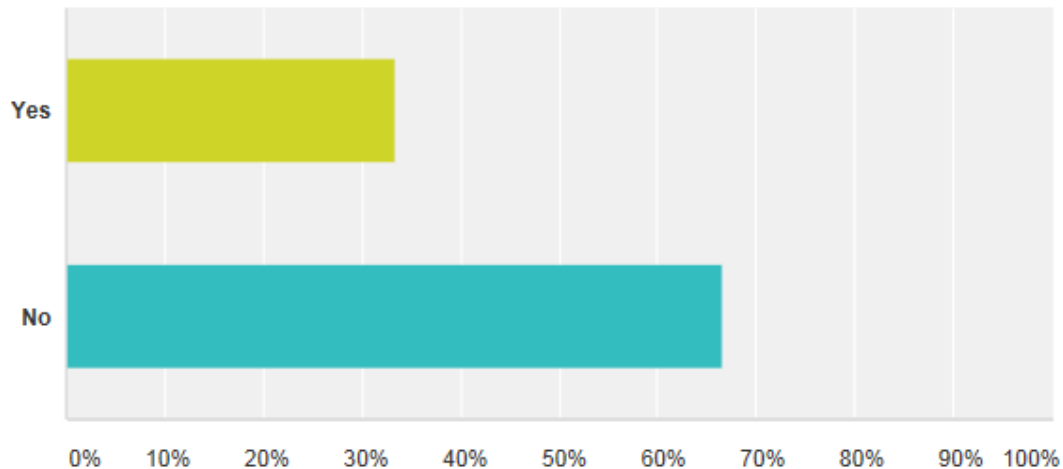
Proposals: 50%

- Coexistence has to be analyzed before; Reduced power at band edges; proposed parameters DC 1%; Power 100mW; OBW = 500kHz
- 500mW, 100% DC, 1 MHz
- 0.1 mW, LBT+AFA OBW 200 kHz your options are very biased towards higher power wideband devices
- 25mW to 100mW LBT+AFA - 300KHz
- 25mW / 10% DC / no LBT / max. 1 MHz OBW but sub channels possible
- among others: 868.xxxMHz or 869.xxxMHz ; 1% or 0.1% DC, no LBT, no AFA, no CCA; OBW 400kHz; wideband, no channels
- 10 mW, 1%DC, AFA, 200 kHz (Note from LPRA: Looks as a strange proposal as it's already allowed with current regulation!)

Other: 7%

- Maybe... short video in residential with decent quality and range

Q8: Do you support an approach on frequency band from 862 to 868MHz with no DC restriction but based on a Clear Channel Assessment mechanism like CSMA/Ack in IEEE802.11.ah?



Q9: Any other recommendation to simplify band 863-868MHz parameters?

4 suggestions

- Focus innovations (like IEEE 802.11ah et al.) on new sub-bands 862-863MHz or 870-874MHz or 915-921MHz, but NOT 865-868MHz - basically keep existing ERC70.03 for 863-870MHz as today many many systems / millions of devices on the market rely on this; focus is on DC (!), see also ECC report 182
- Any high power device introduced in the band 863-865MHz can make this band unavailable for audio application
- LBT+AFA or equivalent with no restriction
- Make one regulation for the whole band

In summary

Due to the low number of answers, it seems that not a lot of industry stakeholders are raising concerns about the current ECC refarming activity.

However, when questions are fully written, there is a majority of answers saying: do not change anything.

On the contrary when innovation is stimulated by parameters tables, there are clear trends to note:

- 862-863MHz
 - o Need for more power 100mW
 - o Need for high Duty cycle : 10%, LBT+AFA or no restriction
 - o Wide bandwidth : 1MHz
- 863-865MHz
 - o Existing parameters are ok (25mW, 0.1%DC+LBT AFA, max OBW 2MHz), but equally there is
 - Need for more power 100mW
 - Need for high Duty cycle : 10%+ LBT+AFA
 - Need for high bandwidth 1MHz

- Also a need for 500mW APC, 10% DC+LBT AFA, but restricted to 200kHz Occupied Bandwidth
- 865-868MHz
 - Existing parameters are ok as a second choice, (25mW, 0.1%DC+LBT AFA, max OBW 3MHz), but strong demand for higher duty cycle without restriction : 25mW , no restriction but LBT/AFA, max OBW 2MHz

The proposal in the Q3, Q5, Q7 & Q9 are very interesting as there is 2 opposite trends, supporters of Duty cycle only medium access and supporters to a more flexible access like LBT+AFA but without restrictions.

Therefore LPRA recommends SE24 to take into account the following parameters for the compatibility studies in WI42: (in addition to Table 12 densities)

- 862-863MHz
 - Generic SRDs
 - 100mW, max 10%DC or LBT+AFA, max OBW 1MHz
 - Average density : 1 device per impact area (~600m²)
- 863-865MHz
 - Generic SRDs
 - 100mW, max 10%DC or LBT+AFA, max OBW 1MHz
 - Average density : 2 devices per impact area
 - High power SRDs
 - 500mW APC, max 10%DC or LBT+AFA, max OBW 200kHz
 - Average density : 1 device per impact area
- 865-868MHz
 - Generic SRDs
 - 25mW, no restriction but LBT+AFA, max OBW 2MHz
 - Average density : 25 devices per impact area