# Receiver parameters in 868.6 to 868.7 MHz – case study

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# ECC Report 125

1. Identification of the issue/problem(s)
2. Describe the policy/measure and identify the objectives
3. Identify and describe the regulatory options
4. Determine the impacts on all stakeholders including relevant spectrum incumbents
5. Determine the impact on competition (if relevant)
6. Assess the impacts and choose the best option
7. Monitoring and evaluation

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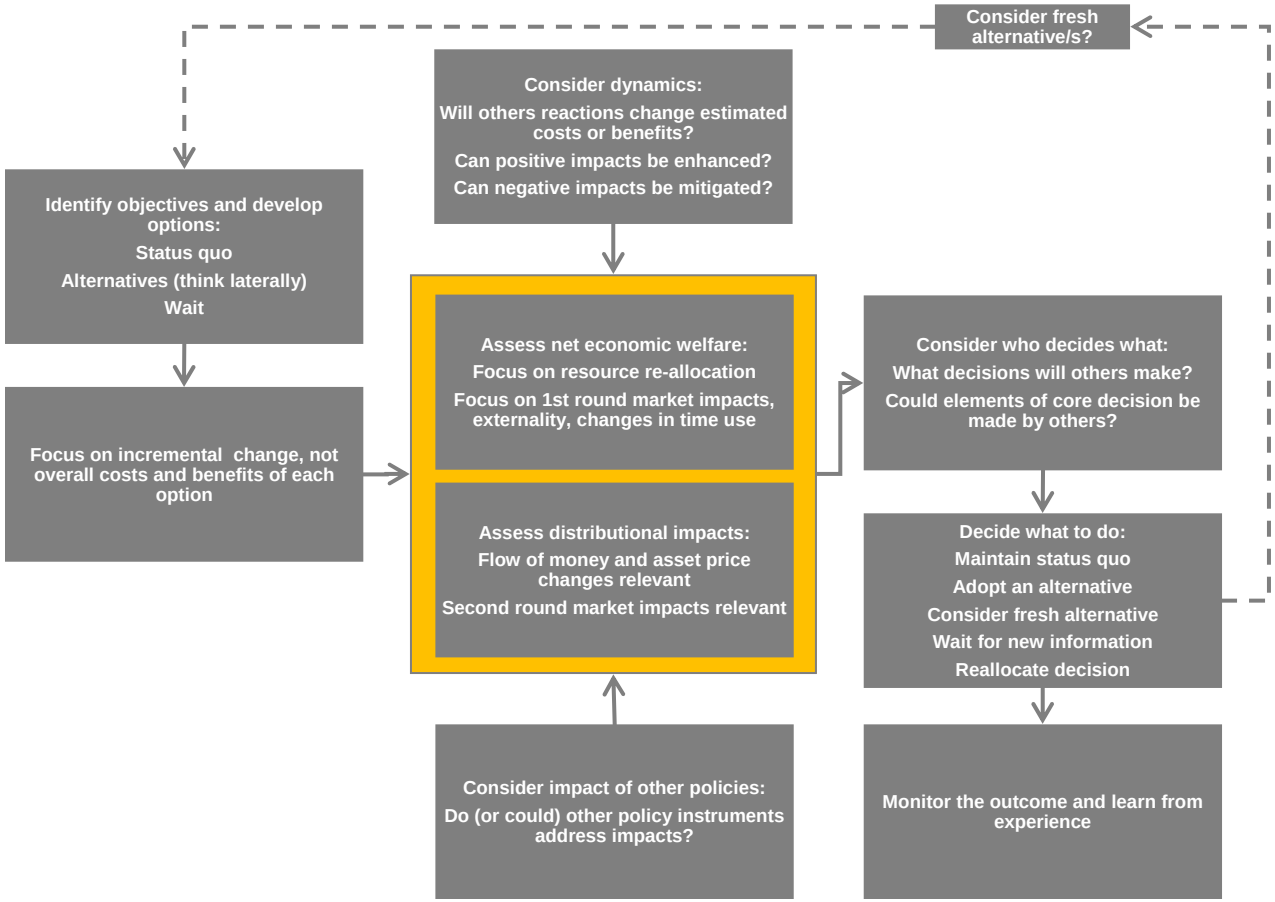
# Economic interpretation

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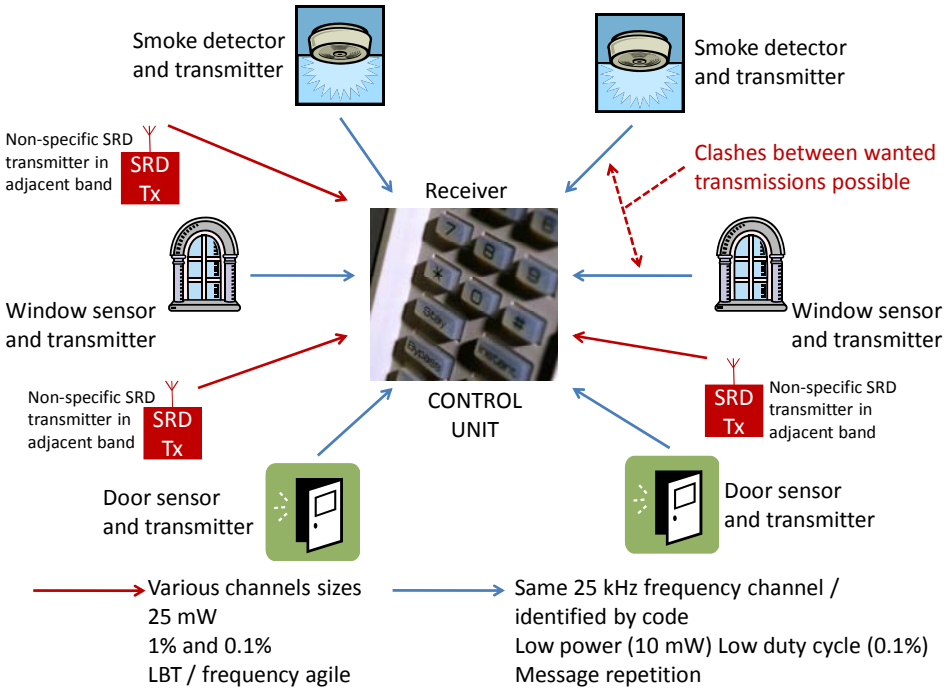
# Alarm systems in 868.6–868.7 MHz




Various channels sizes
25 mW
1% and 0.1%
LBT / frequency agile

Same 25 kHz frequency channel / identified by code
Low power (10 mW) Low duty cycle (0.1%)
Message repetition

# Steps 1, 2 and 3: Problem definition

1. **Identification of the issue/problem(s)**
2. **Describe the policy/measure and identify the objectives**
3. **Identify and describe the regulatory options – to adopt Category 1 or 1 and 2 devices only (out of 3 Categories)**

Discussion of problem definition

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# Step 4: Impacts

4. **Determine the impacts on all stakeholders including relevant spectrum incumbents**
   - What is the relevant counterfactual and what might happen under it?
   - Who are the relevant stakeholders?
   - What impacts should be considered?
   - What are the relevant uncertainties and what could be done to reduce them?

Discussion of impacts

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# Seamcat results, and questions

| | Density of transmitters ($1/km^2$) | Probability of interference in % with a C/I = 8 dB | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Category 1 | | | Category 2 | | | Category 3 | | |
| | | unw | block | Unw+ block | unw | block | Unw+ block | unw | block | Unw+ block |
| Step 1 bis | 10 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | 100 | 0.431 | 0 | 0.432 | 0.5 | 0.2 | 0.54 | 0.5 | 0.53 | 0.7 |
| | 1000 | 4.8 | 0 | 4.8 | 5 | 1.8 | 5.58 | 4.6 | 4.6 | 7.1 |
| | 10000 | 35.2 | 0 | 35.2 | 33.9 | 15.2 | 38.75 | 35.5 | 44.6 | 57.6 |
| Step 6 | 10 | 0.2 | 0 | 2.2 | 0.2 | 0.19 | 0.39 | 0.2 | 0.48 | 0.65 |
| | 100 | 2.1 | 0 | 2.1 | 2.2 | 1.8 | 3.76 | 2.1 | 5.3 | 6.99 |
| | 1000 | 22 | 0 | 22 | 22.35 | 17.6 | 36 | 22.2 | 47.26 | 60 |
| | 10000 | 99 | 0 | 99 | 99 | 94 | 99.9 | 99 | 100 | 100 |

- **Do the system parameter values used for the modelling reflect what is implemented in practice?**
- **What constitutes an acceptable probability of interference/blocking in an alarm system due to SRDs operating in adjacent bands?**
- **What density of interfering SRD transmitters in adjacent bands can be expected?**

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# Step 5: Impact on competition

- **Would there be an impact on competition?**
- **What costs/benefits might be involved?**

Discussion of impact on competition

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# Step 6: Assess the impacts

- **What information is required?**
- **What information is available?**
- **What can we say about costs and benefits?**
- **Should the problem definition be expanded?**
  - Information about adjacent bands?
  - Further Seamcat modelling?
  - Other regulatory options?

Discussion of impact assessment

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# Step 7: Monitoring and evaluation

- **If do nothing/wait and see what monitoring is appropriate?**
- **If restrict to Category 1 or 1 and 2 only what monitoring is appropriate?**
- **Could monitoring be utilised in some other way – to inform the market of an impending problem?**
- **What sort of evaluation is appropriate?**

Discussion of monitoring and evaluation

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