

Channel plan for using multiple STD-502-R in the same area

Avoiding the interference caused by spurious emission

The STD-502-R emits spurious emissions at 13 MHz intervals from the carrier frequency due to the characteristics of the RFIC used in the STD-502-R. The spurious level is well within the regulation limit of each country where the STD-502-R is approved for use.

However, when multiple STD-502-R modules are operated at the same time within a range of 30 m, if there is an STD-502-R whose receiver channel matches up with one of the spurious frequencies of other modules, cross-talk may be caused between the modules.

To avoid this problem, the followings are recommended:

1. Use a channel plan to avoid interference

First, create a basic channel plan to avoid third-order intermodulation interference*. Then eliminate the 13 MHz-spaced spurious frequencies from the plan you made. Use the resultant channels for multiple-channel operation in a small area.

* Circuit Design provides a calculation tool to create a channel plan to avoid third-order intermodulation interference. For more information, refer to the following page.

2. Include channel setting information in transmission data

By including channel setting information in the transmission data, the receiver only processes the data if the channel setting information matches channel setting of receiver.

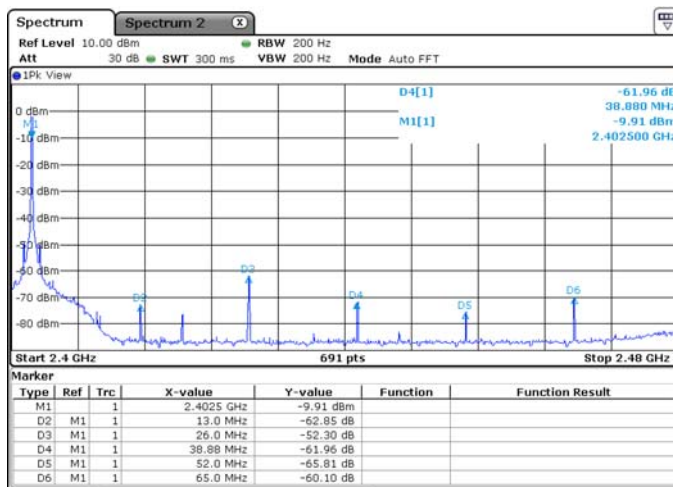


Fig.1 13MHz-spaced spurious when the channel is set to CH00

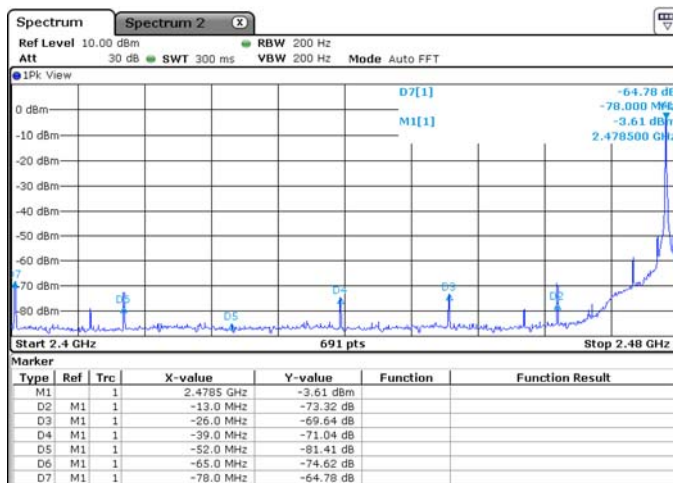


Fig. 2 13MHz-spaced spurious when the channel is set to CH4C

Calculation tool to create a channel plan to avoid third-order intermodulation interference

When multiple STD-502-R modules are used in the same area, the channel plan should be created so that third-order intermodulation interference is avoided.

Figure 3 shows one of the channel plans for the STD-502-R to avoid third-order intermodulation interference created in a calculation tool provided by Circuit Design on its website.

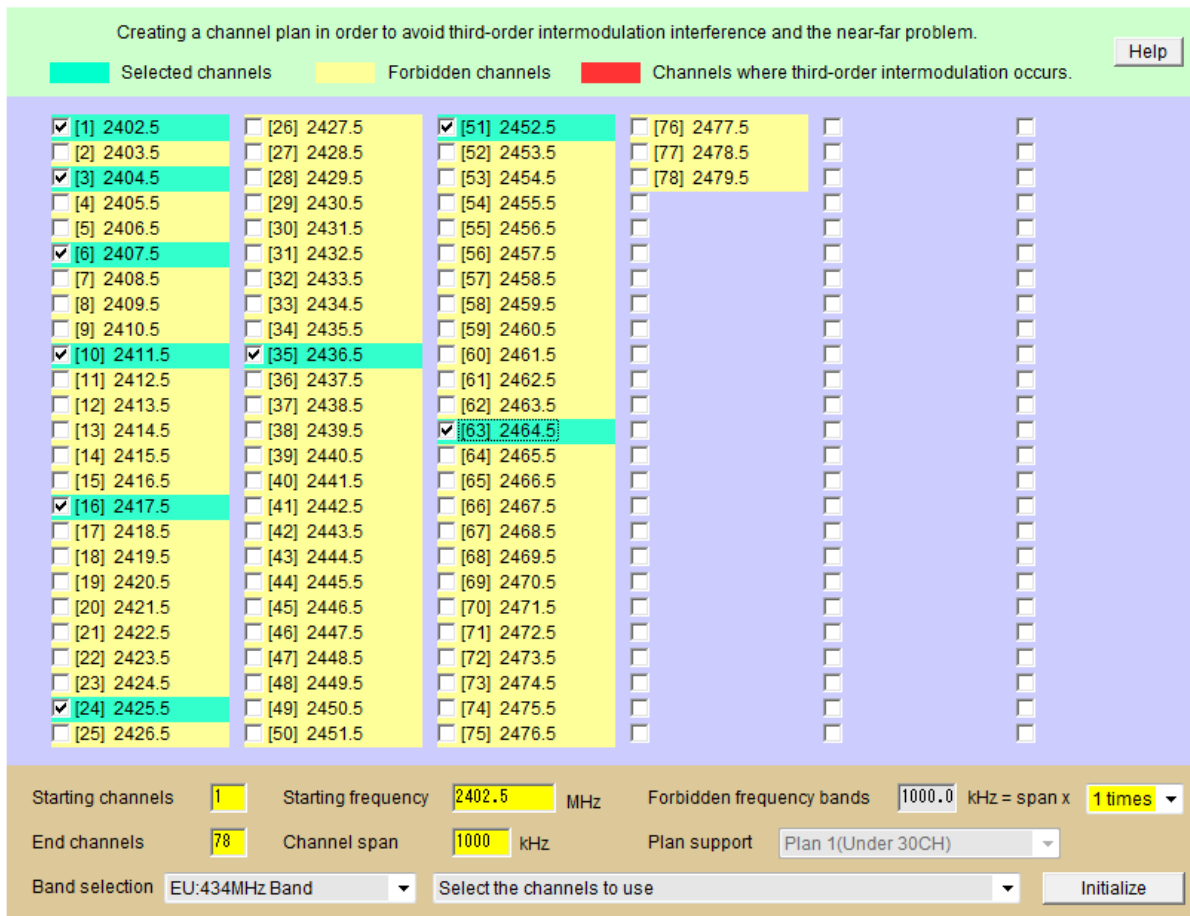


Figure 3 Channel plan created using the calculation tool

The above result means the maximum number of channels that can be used at the same time in the same area is 9. If more than 9 units are used in the same area at the same time, there is a possibility of cross-talk due to interference.

Calculation tool

<http://www.cdt21.com/resources/siryo6.asp>

Revision history

Version	Date	Description	Remark
1.0	Feb.8, 2014	First edition	

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