



August 21, 2016 (replacing previous version)

Mr. Howard Griboff
Mr. Aole Wilkins
Office of Engineering and Technology
Federal Communications Commission
Washington, D.C., United States

Re: ET Docket No. 13–49, FCC 16–68

Dear Sirs,

SPECTRUM SHARING COMPROMISE PROPOSAL OF AUTOTALKS LTD

The Commission is debating between two different proposals for Dedicated Short Range Communications (DSRC) spectrum sharing. Public notice ET Docket No. 13-49 FCC 16-68, calls for refreshing the proposals. This submission is not commenting on the two proposals since the commenting due date have expired. Instead, Autotalks is proposing a compromise solution, called “Re-channelization and avoidance” merging the two proposals, with an intention to allow the industry to converge and move faster into DSRC mass deployment phase.

Both existing proposals will enable activation of safety services using DSRC. The purpose of this submission is mitigating the polarizing discussion by providing a **fair model of spectrum usage**. DSRC will benefit from 30MHz, securely expandable to 70MHz, but only where used, and the WIFI can use the entire band, except near specific locations needed for DSRC usage.

The ongoing debate risks the years-long effort and multimillion dollars investment in DSRC, but much more important than that, risks the real promise to save lives by using DSRC.

Autotalks is a leading provider of DSRC chipset, active in this domain since 2008. Autotalks chipset contains the communication, security and processing functionalities required for reliable DSRC operation. Autotalks chipset is powering multiple field trials worldwide and is awarded for mass-market series production. I am the founder of Autotalks and serving as the Chief Technology Officer since company inception.

The two existing proposals are briefly compared in the table below.

	“Detect-and-avoid”	“Re-channelization”
DSRC	Protected 70MHz band	Limited to 30MHz, and subject to interferences
WIFI	Limited availability next to DSRC	Fully available
DSRC protection scheme	4 detectors are monitoring DSRC preambles at the lowest 10MHz channels Upon detection, WIFI transmission stops for 10 seconds.	Poor protection based on DSRC energy detection. WIFI will typically transmit despite ongoing DSRC transmissions. DSRC protection can be moderately improved by adding two CCA-CS detectors for reliable DSRC detection. But those detectors impose major WIFI chipset changes.

Table 1: Brief Description of Proposed Spectrum Sharing Schemes

“Re-channelization and avoidance” aims to provide assured 70MHz DSRC operation, where needed, scaling down to 30MHz, where possible, to maximize WIFI availability. This is achieved by mirroring the DSRC channel allocation for placing the most commonly used channel (V2V public safety) in the upper band, where it can operate without limiting WIFI, and placing the least used channels (public safety intersection) in the lower band, to minimize WIFI limitations.

The proposed channel allocation is illustrated below, along with the two existing proposals.

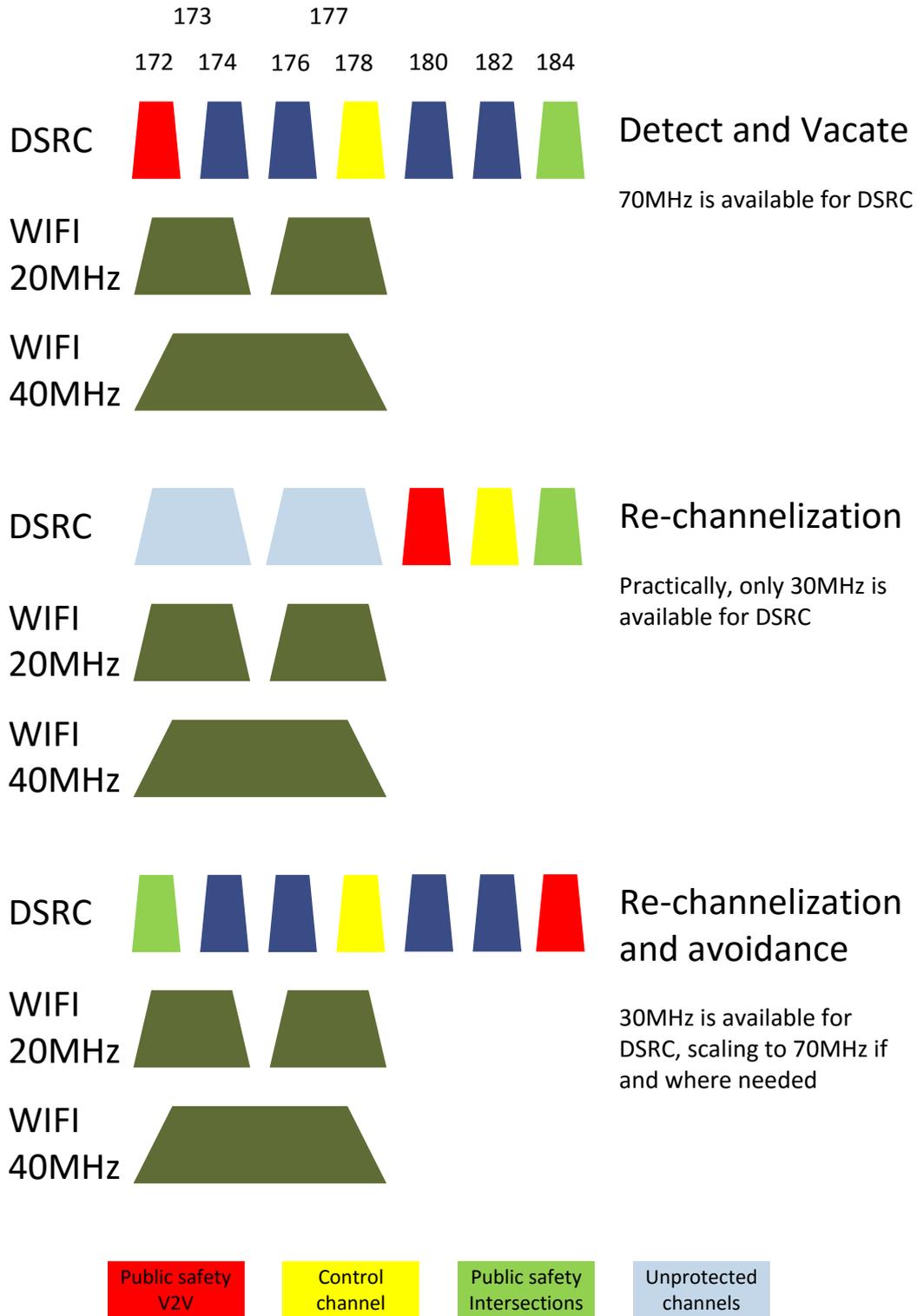


Figure 1: Channel Allocation of spectrum sharing proposals

DSRC detection is applied as follows:

- Both WIFI STA and AP should detect DSRC activity.
- Four DSRC preamble detectors are monitoring the lowest 10MHz channels.
 - The implementation complexity, size and cost of those four detectors is negligible.
 - DSRC detector doesn't detect WLAN preamble because DSRC symbol length is doubled.
 - Energy detection isn't used to declare DSRC activity to prevent false alarm resulted from adjacent channel activity, and to avoid distinguishing between WIFI and DSRC.
- WIFI should stop transmission for 3 seconds after DSRC activity detection.
 - WIFI can resume transmission after no DSRC activity is detected over a period of 3 seconds.
- WIFI AP may switch to another channel.
 - It is desired that WIFI STA would be able to inform the AP that DSRC is active for requesting a channel switch.

The three proposals are summarized in the following table.

Proposal	Spectrum sharing scheme	Disadvantageous
“Detect-and-avoid”	DSRC: Assured protected 70MHz WIFI: no availability in lower 40MHz in proximity of DSRC	<ul style="list-style-type: none"> • WIFI chipsets change needed for DSRC detection <ul style="list-style-type: none"> ○ 4 simple preamble detectors for channels 172, 174, 176, 178
“Re-channelization”	DSRC: Practically limited to 30MHz (not allowing future services) WIFI: full availability	<ul style="list-style-type: none"> • Low protection of DSRC low 40MHz band <ul style="list-style-type: none"> ○ Protection will be poor without adding two complex CCA-CS detectors for channels 173, 177 • V2V safety channel change calls for retesting • Increased DSRC interferences due to WIFI activity and overpopulated DSRC channel allocation
“Re-channelization and Avoidance”	DSRC: Assured protected 70MHz, where and if needed WIFI: Full availability except next to Road Side Units, typically installed in intersections	<ul style="list-style-type: none"> • WIFI chipsets change needed for DSRC detection <ul style="list-style-type: none"> ○ 4 simple preamble detectors for channels 172, 174, 176, 178 • V2V safety channel change calls for retesting • Late proposal in the process

Table 2: Comparison of Spectrum Sharing Proposals



While recognizing that “Re-channelization and Avoidance” proposal is offered at a late stage in the Commission decision process, our aim is not to divert the current decision process, but to offer an alternative solution if the current process doesn’t converge.

Please feel free to contact me for additional information.

Onn Haran
Chief Technology Officer
Autotalks LTD
Grand Netter Building
Kfar Netter, Israel 40593
Business: (+972)-9-886-5302
Mobile: (+972)-54-308-0691
Email: onn.haran@auto-talks.com