SUPPLEMENTAL STATEMENT OF ZIVA CORP.

FILE NO. 0883-EX-CN-2022

The requested FCC license will support testing under an Army/DARPA contract for the SPEAR program contract W31P4Q-17-C-0168, Army Contracting Command – Redstone. COTR is Paul "PROMO" Calhoun, DARPA/TTO, (703) 526-2807, paul.calhoun@darpa.mil

The goal of this contract is to develop improvements for MIMO technology to improve power transfer to a receiver.

This STA is sought for a proof-of-concept test for an innovative technology. The specific frequencies sought here for the STA do not have any long-term potential for recurring use due to allocation issues, rather they are frequencies for which off-the-shelf components are available to implement a feasibility demonstration. If the demonstration is successful, Ziva will request access to other spectrum that would have long term practicality for this technology.

Ziva *may* apply for a subsequent STA for short term use of a higher power in one of these requested bands to verify the technology depending on the results of these experiments. Ziva understands that allocation restrictions on the requested spectrum make its general use at other locations impractical. The ability to request spectrum for experiments with these restrictions is permitted by Section 5.85(a) of the Commission's rules[1]

The technology under consideration required 2 frequencies that differ by a factor of 2. This application seeks a license for 2401 – 2483 MHz and 4802 – 4966 MHz with a 1 kHz emission in each band. If these full bands are not available, Ziva would find acceptable **any pair** of frequencies in these 2 bands provided that the selected frequencies differ by a factor of exactly 2.

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[1] 47 CFR § 5.85 This provides:

> (1) Stations operating in the Experimental Radio Service may be authorized to use any Federal or non-Federal frequency designated in the Table of Frequency Allocations set forth in part 2 of this chapter, provided that the need for the frequency requested is fully justified by the applicant. Stations authorized under Subparts E and F are subject to additional restrictions.
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> (2) Applications to use any frequency or frequency band exclusively allocated to the passive services (including the radio astronomy service) must include an explicit justification of why nearby bands that have non-passive allocations are not adequate for the experiment. Such applications must also state that the applicant acknowledges that long term or multiple location use of passive bands is not possible and that the applicant intends to transition any long-term use to a band with appropriate allocations.

This text was reaffirmed in 2015 when the Commission stated

> "We therefore find generally appropriate …(to) continue to permit conventional ERS use of the passive bands under limited circumstances." *Memorandum Opinion & Order & Further Notice of Proposed Rulemaking*, Docket 10-236, July 6, 2015 at para. 7 (https://docs.fcc.gov/public/attachments/FCC-15-76A1.pdf)

Almost all the experiments will be performed indoors at Ziva's laboratory location at 6440 Lusk Blvd. Suite D107, San Diego CA. The second location will only be used for brief confirmatory outdoor tests.

Ziva recognizes that the requested band in 4802 - 4966 MHz has allocations restrictions in US113 to protect use of the band by the Radio Astronomy Service/RAS. These restrictions require that:

> Every practicable effort will be made to avoid the assignment of frequencies to stations in the fixed or mobile services in these bands. Should such assignments result in harmful interference to these observations, the situation will be remedied to the extent practicable

Ziva also recognizes that 4950-4990 MHz has another restriction in US342 that "all practicable steps shall be taken to protect the radio astronomy service from harmful interference."

The following table shows the distance to the nearest RAS facilities in these bands:

RAS Facility	**Distance from San Diego CA sites**
Allen Telescope Array (ATA), Hat Creek, CA	957 km
Owens Valley Radio Observatory (OVRO), Big Pine, CA	489 km
NRAO Very Long Baseline Array (VLBA) Station, Owens Valley, CA	489 km

Ziva believes that because of these distances and the mountainous terrain involved that interference to RAS facilities is not expected. However, if the Commission feels an additional level of assurance is needed, Ziva would be glad to accept a condition of notifying RAS facilities designated by the Commission before any use of the 4950-4990 MHz band and coordinating each use of the band with these facilities.

For both 2401 – 2483 MHz and 4802-4966 MHz band 13 dBi antennas will be used.

STOP BUZZER contact:

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