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FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF SECRETARY

Before the
FEDERAL COMMUNICATIONS COMMISSION
WASHINGTON, D.C. 20554

In the Matter of Amendment of § 95.801 *et seq.*	)

ORIGINAL

PETITION FOR RULEMAKING

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SUMMARY

EON Corporation proposes that the FCC initiate a rulemaking to amend its Interactive Video and Data Service ("IVDS") rules to accommodate the mobile use of devices that are not required to be permanently attached to a television set. FCC action is promptly needed so that consumers, broadcasters and IVDS licensees can enjoy the full benefit of design refinements not contemplated in the original rules and thus bring affordable data services to the home in short order.

The introduction of these mobile response transmitter units ("RTUs") will enhance the appeal and usefulness of IVDS to subscribers and ensure that the spectrum that the Commission has allocated for IVDS will be used to the fullest possible extent. Furthermore, EON has improved the design of its system to significantly reduce the possibility of interference to adjacent services, even with the addition of mobile units. EON's new configuration is cellular-like with passive receive-only microcells that allow a significant reduction in the regulated transmission power ceiling for all EON RTUs from 20 watts-erp to 100 milliwatts-erp.

Finally, given the importance of these minor changes to the rules in allowing EON to offer enhanced service, and their noncontroversial nature, EON respectfully requests that the Commission act quickly on this Petition, and the subsequent Notice of Proposed Rulemaking, in order to bring as quickly as possible the full benefit of interactive services to the American people.

TABLE OF CONTENTS

EON CONTINUES TO ADVANCE IVDS AS FCC WANTS AND EXPECTS WITH NEW TECHNOLOGY 3

EON'S IMPROVED DESIGN REDUCES THE POSSIBILITY OF INTERFERENCE 5

MOBILE RTU'S WILL ENHANCE THE COMMISSION'S GOALS OF ENCOURAGING NEW COMMUNICATIONS SERVICES AND PROMOTING SPECTRUM EFFICIENCY 6

THE MILLIWATT APPROACH YIELDS IMPROVED SERVICE WITH DECREASED INTERFERENCE 9

EON REQUESTS THE COMMISSION TO AMEND THE IVDS RULES TO ALLOW FOR USE OF MOBILE UNITS 11

EON BELIEVES THAT THE COMMISSION SHOULD IMMEDIATELY ISSUE A NOTICE OF PROPOSED RULEMAKING AND EXPEDITIOUSLY CONDUCT THE PROCEEDING 11

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PETITION FOR RULEMAKING

EON Corporation ("EON"), formerly TV Answer, Inc., pursuant to Section 1.401(a) of the Federal Communications Commission ("FCC" or "Commission") rules, respectfully requests that the Commission expeditiously initiate and conduct a rulemaking proceeding to make certain amendments to its Interactive Video and Data Service ("IVDS") rules to accommodate the mobile use[1/] of devices that are not required to be permanently attached to a television set. FCC action is promptly needed so that consumers, broadcasters and IVDS licensees can enjoy the full benefit of design refinements not contemplated in the original rules. IVDS is one portion of the information superhighway that promises to bring affordable data services to the home in short order. We are on the verge of building such

[1/] In this context, we define as "portable" devices that are not required to be permanently attached to a television set, but that are used within a subscriber's residence or other enclosure. "Mobile" devices are those that would be used outside such an environment. We assume that the use of portable devices is allowed under the Commission's definition of a fixed operation. However, given that the Commission's rules do not appear to explicitly allow the mobile use of such devices, we are requesting that the Commission amend its rules.

systems -- the rule changes we ask for today will allow IVDS providers to bring better service to the consumer more quickly.

We applaud the Commission's actions to date in IVDS. Such actions underscore the Commission's strong resolve to bring IVDS to market and its intention that broadcasters be full participants in the information superhighway. With its adoption of rules in 1992, the Commission stated its commitment to ". . . permit development of a convenient, low-cost system that provides two-way programming, along with informational and data services that may be delivered by, and coordinated with, broadcast television, cable television, wireless cable, direct broadcast satellite, or any other future television."[2/]

Recently, this Commission signalled its ongoing commitment to IVDS and broadcaster interactivity when IVDS was one of the first services for which the Commission adopted auction rules,[3/] and when it indicated such auctions would be held as early as this summer. We commend the Commission for its efforts to ensure that the public will quickly benefit from this important new service.

[2/] *Amendment of Parts 0, 1, 2, and 95 of the Commission's Rules to Provide Interactive Video and Data Services*, Report and Order, 7 FCC Rcd 1630, 1630 (1992) (*Report and Order*).

[3/] *See FCC Adopts Spectrum Auction Procedures for Interactive Video and Data Service (IVDS)*, Report No. DC-2591, PP Docket 93-253, adopted April 20, 1994. The Commission has taken several other steps that have ensured the viability of the service. Last year the Commission conducted lotteries for granting licenses in nine markets. Furthermore, earlier this year, the Commission granted certificates of type acceptance for EON's cell transmitter station ("CTSs") and response transmitter units ("RTUs").

It has become clear that interactivity is a key component of the future growth and development of television broadcasting and a way to ensure the robustness of the broadcasting industry in years to come. IVDS enhances broadcasters' ability to interact with their viewers by providing a return path that is more flexible and independent of the subscriber telephone line. Broadcasting and its related programming services have long been stalwarts of the American economy. As cable, telephone companies, and others build interactive systems, services such as IVDS permit the broadcaster to compete at the same level. Moreover, the full promise of IVDS, and what will fuel the growth of the IVDS industry, is to provide useful and convenient consumer messaging.[4/] This, along with broadcaster interactivity, will contribute to both competition and competitiveness as well as job growth and the overall economic health of our nation.

EON CONTINUES TO ADVANCE IVDS AS FCC WANTS AND EXPECTS WITH NEW TECHNOLOGY

EON is a pioneer in the development of IVDS systems and has remained active in improving the technology and services such systems can offer. EON is committed to the continuous improvement of IVDS through advancements in technology, system design, and service provision. This commitment has resulted in system enhancements that make the use of mobile devices in the IVDS spectrum cost-effective and technically viable. The following sections describe these enhancements and the benefits that result for consumers and broadcasters.

[4/] *See Report and Order* at 1637-1638 (1992).

As the Commission knows, IVDS is a radio-based communications service in which radio signals within the 218-219 MHz frequency band are transmitted between cell transmitting stations ("CTSs") and response transmitter units ("RTUs") that are located atop or in close proximity to the television sets of IVDS subscribers.[5] The EON IVDS system permits an IVDS subscriber to register his or her responses to incoming prompts, requests and other solicitations, through the use of a device, which communicates with an RTU. Once the response is collected by the RTU, it is then packetized and sent over the IVDS spectrum to the licensee's network of base stations.

EON has developed a nationwide cellular communications network with a centralized National Processing Center (NPC) located in Reston, Virginia. The network will provide a variety of services to subscribers, including participatory television programming, online polling, and video catalogs. The EON IVDS network may be used by any of the IVDS system licensees to provide services in their local areas. Local IVDS systems that use EON's network will exchange information with the NPC through a Very Small Aperture Terminal (VSAT) network.

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[5] There can be a maximum of two IVDS systems per service area where each IVDS area is one of the cellular telephone system service areas as defined by the FCC -- Metropolitan Statistical Areas (MSAs) and Rural Statistical Areas (RSAs). 47 C.F.R. § 95.803(b), 803(c) (1992).

Each IVDS system ("A" and "B") in a service area will have a 500 kHz continuous frequency segment in the 218-219 MHz band. In the service areas, the 218.0-218.500 MHz band will be allocated to operator A, while the 218.501-219.0 MHz band will be allocated to operator B. 47 C.F.R. § 95.853(a) (1992).

EON'S IMPROVED DESIGN REDUCES THE POSSIBILITY OF INTERFERENCE

At the IVDS local area level, EON has further refined its technology through the use of passive receive-only microcells. In its new configuration, individual cell sites consist of a transmitter and up to fourteen relay receivers ("remote receivers").[6] The actual number of remote receivers depends on the geographic coverage and demographics associated with the site. Instead of directly transmitting to base stations, as originally contemplated, the RTUs will transmit to the remote receivers which, in turn will relay the radio signals received from the consumer devices via modem and land line to the base station network.[7] One of the most significant benefits that the use of remote receivers makes possible is a significant reduction in the regulated transmission power ceiling for all EON RTUs from 20 watts-erp to 100 milliwatts-erp.[8] This results in a system which, even with the addition of mobile RTUs, reduces even further any possibility of significant interference.

The EON network radio frequency ("RF") communication is by time division duplex ("TDD"). Information is transmitted in two different directions (outbound and inbound) at

---

[6] A cell site consists of a transmitter (also called a base station), up to fourteen remote receivers, a workstation for local processing, and a VSAT for connection to the NPC. In some cases, as dictated by propagation coverage, a remote receiver may be collocated with the base station. The base station broadcasts information from the NPC to consumer devices. In addition, the base station processes data from the devices and sends it to the NPC if necessary.

In the new EON configuration, a service area might have 15 base stations, with each cell site having 14 receivers each of which is capable of receiving on the average three IVDS subscriber messages per second. The EON system could handle a maximum of approximately 37,800 messages per minute and close to 2.3 million responses per hour.

[7] The receivers and their associated modems, however, will not relay radio traffic from the base station to RTUs. Rather, the path from the CTS to the RTUs will operate as originally contemplated.

[8] *See* 47 C.F.R. § 95.855 (1992).

different time intervals as defined by the RF frame. All transmitter, remote receiver and device communications within an MSA are synchronized by a global positioning satellite (GPS) system. This synchronization greatly reduces the possibility of interference with services operating in neighboring spectrum as well as the interference of the base stations with the RTUs because the base station and RTU transmit in different time intervals.

EON has partitioned each IVDS frequency segment into fifteen RF channels.[9] The broadcast channel (frequency) assigned to a base station minimizes the interference to any of its adjacent base stations. Each remote receiver has two RF receivers, with one tuned to the broadcast channel. This channel is called the 'setup' channel and is used by the consumer devices to send either setup or reservation messages. The other RF receiver is tuned to a different channel, known as the data channel, and is used by the devices to send data messages. Remote receivers belonging to the same cell site have different data channel frequencies. This configuration leads to more efficient use of spectrum and less opportunity for the system to cause interference.

MOBILE RTU'S WILL ENHANCE THE COMMISSION'S GOALS OF ENCOURAGING NEW COMMUNICATIONS SERVICES AND PROMOTING SPECTRUM EFFICIENCY

In addition to improving network design and significantly decreasing RTU power levels, EON has also refined its RTU technology so that it can now produce a variety of RTUs that are not required to be permanently attached to a television set, or within an

[9] As part of its partition plan, EON includes a 15.62 kHz guard band at the beginning and at the end of each IVDS spectrum, thus further protecting adjacent services.

enclosure, and still comply with the technical standards applicable to IVDS. This refinement eliminates the need for the subscriber to remain near his or her television set or within an enclosure in accessing the multitude of new and "innovative communications services"[10] that mobile RTUs will afford an IVDS licensee the ability to provide. Similarly, subscribers will benefit from low cost, increased access to IVDS systems made possible by mobile RTUs, which will serve as a new portal to an IVDS licensee's network.

Additionally, these new mobile RTUs will enable a subscriber to do more than make general requests and responses to system-generated data overlays and prompts. EON has demonstrated through developmental testing that its new technology successfully provides low cost access and compelling new services to consumers. At price points similar to basic local paging services, parents will be able to confirm their child's safety or send an electronic "come home now." Broadcasters will be able to provide sports updates to people on the road and let them know to tune in at 7 p.m. when the evening game begins.

This new technology will allow IVDS licensees to leverage existing platforms such as the new generation of portable game players, portable televisions, and personal organizers in order to provide customers and program providers greater options to customize and better organize the data that they transmit over the IVDS system. The introduction of these mobile RTUs will enhance the appeal and usefulness of IVDS to subscribers and ensure that the

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[10] *See Report and Order* at 1631 ("An IVDS allocation will also further the Commission's goals of encouraging the development of innovative communications services . . .").

spectrum which the Commission has allocated for IVDS will be used to the fullest possible extent.[11]

Moreover, the fundamental design of these low power RTUs, both mobile and portable, satisfies the Commission's other principal goals in its adoption of technological requirements for IVDS operation.[12] The use of low power RTUs is not anticipated to impair or cause interference to the functioning of existing services that are currently eligible to use frequencies in the 218-219 MHz band or interfere with services occupying adjacent frequencies. These RTUs will also employ the IVDS frequencies within the 218-219 MHz band to communicate directly with remote receivers or transmitters.[13] Moreover, the low-power RTUs will comply with automatic power control regulations (limiting RTU power levels to the minimum ERP necessary for communication with transmitters), emission

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[11] *See Report and Order* at 1631 ("An IVDS allocation will also further the Commission's goals of . . . promoting efficient use of the electromagnetic spectrum.")

[12] The Commission stated in the Notice of Proposed Rulemaking for the establishment of IVDS:

> In developing technical requirements for IVDS operation, our principal goals are to ensure that harmful interference is not caused to TV channel 13 service . . . and, to provide as much flexibility for the use of alternative IVDS technologies as possible, given our concerns for interference to TV channel 13.

Amendment of Parts 0, 1, 2, and 95 of the Commission's Rules to Provide for Interactive Video Data Services (*Notice*), 6 FCC Rcd. 1368, 1369 (1991).

[13] Because mobile RTUs will communicate directly with CTSs or remote receivers, this will not violate Section 95.805(c) of the Commission's rules prohibiting RTU-to-RTU communications. *See* 47 C.F.R. § 95.805(c) (1992).

standards, and maximum limitations on ERP and duty cycles, as well as with other operational requirements contained in the Commission's rules.[14]

THE MILLIWATT APPROACH YIELDS IMPROVED SERVICE WITH DECREASED INTERFERENCE

EON's milliWatt approach provides benefits to IVDS users, providers, and broadcasters alike. In particular, broadcasters stand to benefit in a number of ways. First, given the low power levels at which RTUs will operate, there will be a considerable decrease in the possibility of interference to television channel 13 (as well as other potentially affected licensees). Second, there is the opportunity for interactive programs to generate advertising revenues. Third, there is the benefit to broadcasters of full participation in the information superhighway.

Benefits to the IVDS licensee of the milliWatt approach include that the new network is quicker and cheaper to deploy than EON's previous configuration and is easier to customize geographic coverage, both for video and for additional options such as intrafamily communications services. Furthermore, it is a robust self-healing network that can provide backup service to the majority of the devices served by a remote receiver or a base station in the event that that receiver or base station goes out of service.

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[14] To reduce further the likelihood of interference to potentially affected operators, EON will make interference-reduction devices available to licensees using its technology. *See* 95.861(c). These devices will be installed free-of-charge on the television sets of viewers who encounter interference attributable to the IVDS licensee's system, to television channel 13.

The milliWatt approach also yields significant consumer benefits. The manufacturing costs of RTUs will decrease largely due to the elimination of higher-powered amplifiers and cooling circuitry. Consequently, the retail price of RTUs will be much lower, which is in consumers' best interests. EON's milliWatt approach also increases inbound throughput because of the multiple data collection points, which enhances response time to consumers.

Finally, of benefit to all involved, the use of mobile RTUs will allow IVDS licensees to expand services that intersect with television viewing and provide such services as remote VCR recording and sports, weather, and traffic updates. These new services leverage the broadcaster's existing infrastructure of time-sensitive data by combining such data with a technology that promotes connectivity to the television from outside the home, thereby adding value for the viewer. Furthermore, mobile RTU-dependent applications such as messaging and child security could be offered to consumers at reasonable price today.

The implementation of IVDS generally and the specific improvements to EON's IVDS network described above translate into better and faster infrastructure development, and a means by which broadcasters and others can immediately, actively participate in the information superhighway. As the IVDS consumer becomes accustomed to easy interactivity, use of the IVDS network will increase. As multiple paths to this information superhighway evolve, it will become clear that a digital network is inherently a multi-service network. By permitting these minor changes to the rules, the Commission will free IVDS licensees to offer consumers today an inexpensive multiple service on-ramp to the

information superhighway. Not only do EON's new system and these rule changes support low cost entry to this superhighway, but such developments have the potential to encourage economic and jobs growth as a new industry is born.

EON REQUESTS THE COMMISSION TO AMEND THE IVDS RULES TO ALLOW FOR USE OF MOBILE UNITS

EON believes that the Commission should view these as minor changes that naturally evolve from EON's new technological approach, and that enhance the consumer benefits of IVDS. We assume that portable RTUs designed to operate inside a subscriber's residence or other physical enclosure would be permitted; however, there may be some question as to whether mobile use of such devices, that is, use outside the residence, constitutes use not envisioned by the Commission when it adopted IVDS rules. In order to ensure that EON's innovative application of technology is in compliance with the IVDS rules, we request that the Commission expeditiously amend its rules to explicitly allow the operation of mobile devices outside the residence. We have included as Appendix A the recommended amendments.

EON BELIEVES THAT THE COMMISSION SHOULD IMMEDIATELY ISSUE A NOTICE OF PROPOSED RULEMAKING AND EXPEDITIOUSLY CONDUCT THE PROCEEDING

EON has worked with technical representatives of other interested parties to develop a system that can better serve the public without any cost in terms of increasing the potential

for interference.[15] As a result of this work, and the contribution of these parties, we believe that this proposal fully meets the Commission's obligation to ensure that existing licensees are protected from interference. IVDS generally should be viewed as an enhancement to broadcast service and a means for broadcasters to easily enter the world of interactive data services. In particular, EON's new approach would put low power, mobile, easy to use units in the consumer's hands, thus encouraging rapid growth of IVDS and broadcast interactivity.

In light of this, we believe it is particularly important that the Commission act quickly on our petition for rulemaking. As provided in the Commission's rules,[16] the Commission can act quickly on this petition and can issue a Notice of Proposed Rulemaking incorporating the rules outlined above immediately following the close of the comment cycle on this Petition for Rulemaking. Given the importance of these minor changes to the rules in allowing EON to offer enhanced service, and their noncontroversial nature, we ask that the Commission set the shortest possible comment periods for both the Petition for Rulemaking and the Notice of Proposed Rulemaking.

Time and timing are of utmost importance. The sooner that the Commission acts on these straightforward rule changes, the sooner consumers, IVDS licensees and broadcasters

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[15] Prior to submitting this Petition for Rulemaking to the Commission, EON reviewed the milliWatt system, and its potential to reduce possible interference from IVDS systems to Channel 13, with representatives of the Maximum Service Television, Inc. ("MSTV").

[16] 47 C.F.R. § 1.405(d) (1992).

will benefit from the introduction of a new, interactive service, the sooner the economy as a whole will benefit from economic, job, and infrastructure growth and the more certain it will be that a full range of feature-rich services tied to locally licensed broadcast programs will be part of the range of options available to the American public.

Respectfully submitted,

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Dated: May 11, 1994

§ 95.803 IVDS description.

(a) An IVDS system is a point-to-multipoint, multipoint-to-point, short distance communications service for its licensee to provide information, products, or services to, and allow interactive responses from, subscribers in the service area.

(b) The components of each IVDS system are its associated administrative apparatus, its response transmitter units (RTUs), and one or more cell transmitter stations (CTSs). There may be two types of RTUs: non-mobile RTUs that can be used in fixed locations within the service area and mobile-RTUs that may be used in any location within the service area. Each IVDS system is authorized for a specific service area and frequency segment. There can be a maximum of two IVDS systems per service area. There are two frequency segments available for each service area.

§ 95.805 Permissible communications.

(d) The licensee may use the IVDS system to interact with its subscribers concerning products and services offered, polls conducted, educational classes taught, two-way services and other activities in conjunction with video and data delivery systems.

(e) An IVDS system may provide service to non-mobile RTUs in fixed locations within the service area such as private residences, places of business, educational institutions, and local, state, or federal government agencies. An IVDS system may also provide service to mobile RTUs in any location within the service area.

§ 95.855 Transmitter effective radiated power limitation.

(a) The effective radiated power of each CTS and RTU shall be limited to the minimum necessary for successful intercommunication. RTUs must incorporate automatic power control to ensure the minimum power is used. No mobile or portable RTU may transmit with an effective radiated power (ERP) exceeding 100 milliwatts and no CTS or fixed RTU may transmit with an effective radiated power (ERP) exceeding 20 watts.

§ 95.859 Antennas.

(c) A non-mobile RTU may be connected to an external antenna not more than 6.1 m (20 feet) above ground or above an existing man-made structure (other than an antenna structure). Connectors that are used to connect non-mobile RTU's to an external antenna shall not be of the types generally known as "F-type" or "BNC type." Use of an external antenna is subject to § 95.861. Mobile RTUs may not be connected to an external antenna.

CERTIFICATE OF FILING AND SERVICE

I hereby certify that an original and 9 copies of the foregoing Petition for Rulemaking were deposited for filing with the Office of the Secretary, Federal Communications Commission, Washington, D. C. 20554, this 11th day of May, 1994.

I further certify that a true copy of the Petition for Rulemaking was served by first-class U. S. mail, postage pre-paid, on each of the parties listed below this 11th day of May, 1994.

Date: May 11, 1994

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Washington, D. C. 20006

Northwest Television, Inc.
c/o Nancy L. Wolf
Dow, Lohnes & Albertson
1255 Twenty-third Street, N. W.
Suite 500
Washington, D. C. 20037

Philips Consumer Electronic Corporation
I-40 and Straw Plains Pike
Knoxville, Tennessee 37914-1810

Pikes Peak Broadcasting Company
c/o Fletcher, Heald & Hildreth
Fletcher, Heald & Hildreth
1225 Connecticut Avenue, N. W.
Suite 400
Washington, D. C. 20036

Southwestern Bell
c/o Durward D. Dupre
1010 Pine Street, Rm. 2114
St. Louis, Missouri 63101

United States Telephone Association
Martin T. McCue, V.P.
900 19th Street, N. W.
Suite 800
Washington, D. C. 20006-2105

WDIO-TV, Inc.
c/o Marvin Rosenberg
Fletcher, Heald & Hildreth
1225 Connecticut Avenue, N. W.
Suite 400
Washington, D. C. 20036

WJG Maritel Corporation
c/o William D. Freedman
Gurman, Kurtis, Blask & Freedman
1400 16th Street, N. W.
Suite 500
Washington, D. C. 20036