

Nokia, Inc.
Application for Experimental Special Temporary Authority
New York City

Exhibit 1

Nature of the Operation. This application seeks special temporary authority to operate a transmitter for the purpose of demonstrating the transmission of digital video signals to handheld receivers located in cell phones. The transmission will be conducted using the digital video broadcast – handheld (DVB-H) modulation, which differs from the 8-VSB modulation employed in over-the-air digital television broadcasting. The signals to be transmitted are not intended for the public and are not displayable on conventional digital video receivers. As such, the demo will not involve “broadcasting” as defined in Section 3 of the Communications Act, 47 U.S.C. § 153(5). Instead, the signals are designed to demonstrate a mobile service intended to complement digital cellular service. The spectrum chosen for this demonstration was picked to accommodate prototype equipment from overseas. Eventually, the service is expected to operate in spectrum above that authorized for broadcast television.

Frequency Selection. Great care has been devoted to selecting spectrum for this operation that is unlikely to cause harmful interference to either broadcasting stations or to land mobile stations authorized in the 470 – 512 MHz portion of the UHF television band. The attached Engineering Statement from the firm of Cavell, Mertz, and Davis, Inc., has been prepared to address the selection of the proposed frequency.

Site and Antenna Considerations. The proposed operation will be conducted inside an exhibit space on the third floor of the New York Hilton Hotel. The space consists of an interior room without windows. For interference analysis purposes, the operations have been assumed to be non-directional. However, a directional antenna will be used in the room. The maximum effective radiated power is two watts as shown in the application. The antenna characteristics are shown in Exhibit 2. Actual antenna orientation within the room must be determined after the equipment is set up and tested in the room.

Engineering Statement
REQUEST FOR EXPERIMENTAL AUTHORIZATION
prepared for
Nokia, Inc.
Experimental DT New York, New York
Ch. 43 2 Watts

Nokia, Inc. (“*Nokia*”), seeks Experimental Authorization to transmit a digital low-power television signal on UHF Television Channel 43. The facility requested herein will be used to demonstrate the technical performance of Digital Video Broadcast Handheld (“DVB-H”), a portable video technology intended to broadcast video, audio, and data to handheld devices.

Facilities Requested

The technical parameters for the proposed operation involve a directional transmitting antenna temporarily placed within a meeting room at the Hilton, New York hotel, 1335 Avenue of the Americas, New York, NY at the coordinates shown below. FAA notification is not required for this antenna which will strictly be used indoors.

40° 45’ 44” North Latitude
73° 58’ 45” West Longitude
(NAD 27)

A maximum effective radiated power (“ERP”) of 2 Watts with an antenna radiation center height above ground (“HAG”) of 16 meters is proposed¹. Six MHz bandwidth, DVB-T COFDM modulation will be utilized². The proposed station will be constructed to confine out-of-channel emissions within the “simple” mask specified in §74.794 of the FCC’s Rules.

NTSC, DTV, LPTV, and Class A Station Allocation Considerations

In the endeavor to select a channel that is unlikely to cause interference, a study of all nearby authorized stations in the FCC’s CDBS database was performed. An

¹ The proposed antenna height is 33 meters above mean sea level.

² The DVB-T modulation will be utilized to carry a digital video broadcast handhelds (“DVB-H”) encapsulated payload. See Digital Video Broadcasting (DVB); Transmission System for Handheld Terminals (DVB-H), European Telecommunications Standards Institute EN 302-304 V1.1.1; November, 2004.

Engineering Statement
REQUEST FOR EXPERIMENTAL LICENSE
(page 2 of 5)

interference study per OET Bulletin 69³ was performed to examine the change in interference experienced by other stations that would result from the proposed Channel 43 facility.

For study purposes, a non-directional antenna, emitting 2 Watts ERP was assumed, although the proposed directional antenna will only reach 2 Watts ERP in a few directions. Further, no consideration of building attenuation (either from the hotel meeting room or from surrounding structures) was considered. As such, the results of the study represent a “worst case” scenario.

The results of the interference study, summarized in **Table 1**, indicate that the instant proposal will cause no additional interference to any authorized facility, except to the unbuilt Construction Permit facility of WXNY-LP (Ch. 43 New York, NY BPTTL-20021204AAZ). WXNY-LP is licensed on Channel 32. According to a representative of the licensee of WXNY-LP, construction of the Channel 43 facility will not be completed until long after *Nokia's* proposed operation in December 2005. The applicant recognizes the secondary status provided under Experimental Authorization and will cease operation as necessary in the event actual interference occurs.

Other Considerations

The nearest FCC monitoring station is at Laurel, Maryland, at a distance of 301 km from the proposed site. The proposed site exceeds by a great margin the minimum distance specified in §73.1030(c)(3)(ii) that would suggest consideration of the monitoring station.

³ Although OET Bulletin 69 specifies procedures for quantifying interference caused by 8-VSB facilities, laboratory tests have shown little difference between the desired-to-undesired ratios of DVB-T COFDM (to both NTSC and 8-VSB) and 8-VSB. See the VSB/COFDM Project (NAB and MSTV) “Investigation of VSB Improvements” December 2000. Adjustments in the OET Bulletin 69 computer program were made to consider use of the “simple” emission mask.

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REQUEST FOR EXPERIMENTAL LICENSE
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The U.S. - Canadian agreement calls for notification of digital low-power stations within 100 km of the border. Similarly, the U.S. - Mexico agreement calls for notification of 1 kW (or less) low-power TV stations within 60 km of the border. As the proposed site is located at least 395 km from the nearest point on the U.S. - Canadian border and 2,709 km from the nearest point on the U.S. - Mexico border, the proposed facility does not require international coordination.

Conclusion

It is thus believed, based on the foregoing, that the facility proposed herein will satisfy all of the pertinent Commission Rules and Policies now in effect regarding allocation matters.

Environmental Considerations

The proposed transmitting antenna will be temporarily placed within a hotel meeting room. Because no change to the exterior of the building is involved, it is believed that this application may be categorically excluded from environmental processing pursuant to §1.1306 of the FCC Rules.

The proposed experimental operation was evaluated for human exposure to radiofrequency (RF) energy using the procedures outlined in the Commission's OET Bulletin No. 65 ("OET 65").

OET-65's formula for television transmitting antennas is based on the NTSC transmission standards, where the average power is normally much less than the peak power. For the DTV facility in the instant proposal, the peak-to-average ratio is different than the NTSC ratio. The DTV ERP figure herein refers to the average power level. The formula used for calculating DTV signal density in this analysis is essentially the same as equation (10) in OET-65.

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REQUEST FOR EXPERIMENTAL LICENSE
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$$S = (33.4098) (F^2) (ERP) / D^2$$

Where:

S = power density in microwatts/cm²
ERP = total (average) ERP in Watts
F = relative field factor
D = distance in meters

Appropriate crowd control methods, such as posts, rope and stanchions, along with an appropriate RF exposure sign, will be used to prevent the public from reaching a point less than one-half meter from the proposed antenna. Using the above equation, calculations were made to predict power density attributable to the proposed facility at this distance.

An ERP of 2 Watts, horizontally polarized, will be employed. A relative field of 100 percent is used for this calculation. The “uncontrolled / general population” limit specified in §1.1310 for Channel 43 is 431 $\mu\text{W}/\text{cm}^2$. Using this formula, the proposed facility will reach 267 $\mu\text{W}/\text{cm}^2$, or 62 percent of the “uncontrolled / general public” Maximum Permissible Exposure (“MPE”) limit at a distance of one-half meter from the proposed antenna.

As demonstrated herein, excessive levels of RF energy will not be caused at publicly accessible areas near the antenna. Consequently, members of the general public will not be exposed to RF levels in excess of the Commission’s guidelines.

Based on the preceding, it is believed that the instant proposal may be categorically excluded from environmental processing under Section 1.1306 of the Rules, hence preparation of an Environmental Assessment is not required.

Certification

The undersigned hereby certifies that the foregoing statement was prepared by him or under his direction, and that it is true and correct to the best of his knowledge and

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belief. Mr. Ryson is a senior engineer in the firm of Cavell, Mertz & Davis, Inc. and has submitted numerous engineering exhibits to the Federal Communications Commission. His qualifications are a matter of record with that agency.



Daniel G. Ryson
November 18, 2005

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List of Attachments
Table 1 – Interference Analysis Results Summary

Table 1
INTERFERENCE ANALYSIS RESULTS SUMMARY

prepared for
Nokia, Inc.
 Experimental DT New York, NY
 Ch. 43 2 W

<u>Stations Considered</u>	<u>City, State Channel</u>	<u>Distance (km)</u>	<u>Baseline Population</u> (1)	<u>Service Population</u> (2)	<i>--- Unique Interference ---</i> <i>from proposal</i>	
					<u>Population</u> (3)	<u>Percentage</u> (4)
W28AJ LIC	ALLINGTOWN, CT 28	103.4	----- no new interference caused by proposal -----			
WFPA-CA LIC	PHILADELPHIA, PA 28	133.6	----- no new interference caused by proposal -----			
W29CF LIC	HEMPSTEAD, NY 29	36.3	----- no new interference caused by proposal -----			
WTXF-TV LIC	PHILADELPHIA, PA 29	133.6	----- no new interference caused by proposal -----			
WNYX-LP LIC	NEW YORK, NY 35	3.4	----- no new interference caused by proposal -----			
W36AZ CP	SUSSEX, NJ 35	63.3	----- no new interference caused by proposal -----			
WYBE LIC	PHILADELPHIA, PA 35	133.4	----- no new interference caused by proposal -----			
W36AZ LIC	SUSSEX, NJ 36	63.3	----- no new interference caused by proposal -----			
WNYN-LP LIC	DEER PARK, NY 39	3.4	----- no new interference caused by proposal -----			
WDVB-CA LIC	EDISON, NJ 39	43.5	----- no new interference caused by proposal -----			
WLVT-TV LIC	ALLENTOWN, PA 39	125.0	----- no new interference caused by proposal -----			

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					<u>Population</u> (3)	<u>Percentage</u> (4)
WXTV LIC	PATERSON, NJ 41	1.7	-----	no new interference caused by proposal	-----	
WNAI-LP LIC	SPRINGVILLE, NJ 41	133.4	-----	no new interference caused by proposal	-----	
WKOB-LP CP	NEW YORK, NY 42	6.9	-----	no new interference caused by proposal	-----	
W42CX CP	PORT JERVIS, NY 42	92.7	-----	no new interference caused by proposal	-----	
WSAH CP	BRIDGEPORT, CT 42	98.7	-----	no new interference caused by proposal	-----	
W42AE LIC	POUGHKEEPSIE, NY 42	106.3	-----	no new interference caused by proposal	-----	
WTFX-TV LIC	PHILADELPHIA, PA 42	132.4	-----	no new interference caused by proposal	-----	
WTFX-TV CP	PHILADELPHIA, PA 42	133.6	-----	no new interference caused by proposal	-----	
WSKG-TV CP MOD	BINGHAMTON, NY 42	218.8	-----	no new interference caused by proposal	-----	
WXNY-LP CP	NEW YORK, NY 43	3.4	-----	no protection required; see text	-----	
WNJT LIC	TRENTON, NJ 43	80.2	-----	no new interference caused by proposal	-----	

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					<u>Population</u> (3)	<u>Percentage</u> (4)
W55BS CP	BELVIDERE, NJ 43	91.6	----- no new interference caused by proposal -----			
WSAH LIC	BRIDGEPORT, CT 43	98.7	----- no new interference caused by proposal -----			
WEWB-TV LIC	SCHENECTADY, NY 43	206.9	----- no new interference caused by proposal -----			
WPMT LIC	YORK, PA 43	237.0	----- no new interference caused by proposal -----			
W43CJ CP	MANSFIELD, PA 43	284.0	----- no new interference caused by proposal -----			
WGBX-TV LIC	BOSTON, MA 43	286.2	----- no new interference caused by proposal -----			
WNYS-TV LIC	SYRACUSE, NY 43	299.0	----- no new interference caused by proposal -----			
WPXW LIC	MANASSAS, VA 43	361.2	----- no new interference caused by proposal -----			
WNYW LIC	NEW YORK, NY 44	1.7	----- no new interference caused by proposal -----			
WNYW CP MOD	NEW YORK, NY 44	1.7	----- no new interference caused by proposal -----			
WMCN-TV CP	ATLANTIC CITY, NJ 44	136.4	----- no new interference caused by proposal -----			
WVIA-TV LIC	SCRANTON, PA 44	166.0	----- no new interference caused by proposal -----			
WELL-CA CP	PHILADELPHIA, PA 45	133.7	----- no new interference caused by proposal -----			
WMBQ-CA CP	MANHATTAN, NY 46	1.8	----- no new interference caused by proposal -----			

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			<u>Baseline Population (1)</u>	<u>Service Population (2)</u>	<u>Population (3)</u>	<u>Percentage (4)</u>
WRNN-LP CP	NYACK, NY 46	46.2	----- no new interference caused by proposal -----			
W46DQ CP	PORT JERVIS, NY 46	92.7	----- no new interference caused by proposal -----			
W46BL LIC	ALLENTOWN-BETHLEHEM, PA 46	125.5	----- no new interference caused by proposal -----			
WNJU CP	LINDEN, NJ 47	6.3	----- no new interference caused by proposal -----			
WNJU LIC	LINDEN, NJ 47	6.3	----- no new interference caused by proposal -----			
WNJN LIC	MONTCLAIR, NJ 50	21.9	----- no new interference caused by proposal -----			
WNHX-LP CP	NEW HAVEN, CT 51	109.9	----- no new interference caused by proposal -----			
W51BN LIC	WHITE LAKE, NY 51	125.4	----- no new interference caused by proposal -----			
WNHX-LP LIC	NEW HAVEN, CT 51	129.1	----- no new interference caused by proposal -----			

Notes:

- (1) For DTV Stations: Greater of NTSC or DTV Service Population, from FCC Table
For NTSC Stations: Population within noise-limited contour
For LPTV & Class A Stations: Population within the dipole-corrected 74 dB μ contour
- (2) Interference-free service population per OET-69 before consideration of proposal
- (3) Net change in population receiving interference resulting from proposal
- (4) Proposal's impact in terms of percentage, equals (3)/(1) times 100 percent: not to exceed zero when rounded to the nearest whole percent

The determination of stations for consideration and the determination of baseline population and interference percentages were made as described in the Commission's August 10, 1998 Public Notice "Additional Application Processing Guidelines for Digital Television"