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

In re:	)	
	)	
Globecomm Systems, Inc.	)	SES-MOD-20000420-00658
Application for Modification	)	
of Earth Station E990402	)	

To: Chief, Satellite Division

PETITION FOR RECONSIDERATION

Globecomm Systems, Inc. ("GSI"), licensee of earth station E990402, hereby requests that the Commission reconsider its June 28, 2002, action dismissing the modification application filed for the above-referenced station. In this application GSI requested that it be able to add Hispasat C-1 as a point of communications for E990402 and operate the station in the 13.75 - 14.00 GHZ band ("E990402 Application"). After pending for over two years, the Commission staff has now denied the E990402 Application, based on a preliminary analysis by the National Telecommunications and Information Administration ("NTIA") that theE990402 operation would not provide enough protection to U.S. Navy radiolocation receivers along the shoreline. As shown below, however, a more detailed analysis reveals that in fact the E990402 Application does meet the NTIA protection requirements. Because GSI is in compliance with the FCC and NTIA technical requirements, the E990402 Application should thus be reinstated and promptly granted.

ARGUMENT

1. Among its numerous service offerings, GSI uses its authorized earth stations to provide end-to-end services that can solve many of the existing and emerging global

communications problems faced by companies, enterprises, and government entities where high-bandwidth communication is required in locations around the globe. Globecomm offers a full range of satellite and terrestrial services, providing customers with "one stop outsourcing" for their global telecommunication service requirements.

2. On April 24, 2000, GSI filed the E990402 Application, which as noted, requested to add Hispasat as a point of communications so that Internet-via-satellite technology and lifeline information could be provided to American travelers and other users in various Central and South America destinations, as well as Puerto Rico. In addition to the lifeline capabilities that would be provided, the new service would allow for Internet access to help open societies to new ideas and democratic thinking.

3. Because of the growing demand for the proposed service, GSI filed for and received Special Temporary Authority to operate E990402 during the pendency of the application.[1] Therefore, GSI has been offering service on E990402 via Hispasat for nearly 2 years. On numerous occasions, GSI questioned the Commission staff as to the status of the E990402 application, and was informed it was pending at the NTIA and that no further information or updates were needed from GSI. Therefore, the outright dismissal of the E990402 Application,

[1] GSI subsequently modified the STA request from the original April 26, 2000 application in that it specified operations with an EIRP below the minimum 68 dBW emission requirements provided for in 47 C.F.R. §§ 25.204(f); 2.106 nS5.502. The Commission, and the NTIA, approved these technical specifications. The FCC staff advised GSI to wait until the E990402 Application was acted upon, however, before filing a subsequent modification, to avoid falling out of the processing line. As a result, GSI has been filing, along with the requisite filing fee, STA extension requests every 30 days, as required under the FCC rules.

without being given a chance to amend, or consult with the FCC staff or NTIA regarding engineering matters, came as a surprise to GSI.

4. In a letter dated June 20, 2002, the NTIA indicated that it had increased responsibilities to protect littoral (i.e., shoreline) areas of the United States as a result of post September 11 homeland security concerns. The NTIA modified its rules to require earth stations operating in the 13.75 - 14.00 GHZ Band near the shoreline to operate with a power flux density value no greater than -167 dBW/m^2/4 kHz. A copy of the NTIA June 20, 2002 letter is attached hereto. The NTIA performed its analysis of the E990402 Application based on this advisory, and found that it did not comply with the protection requirements.

5. But, as shown in the comprehensive engineering analysis attached hereto as *Exhibit A*, the NTIA analysis did not properly take into account the actual terrain in and around the E990402 earth station location in Hauppauge, New York. When these factors are properly considered, the E990402 Application meets the interference criteria requirements, and therefore the NTIA's initial analysis was incorrect.[2]

6. Although the operations pursuant to the E990402 Application were temporary, and even though GSI made it known to its customers that the permanent authority had not yet been granted, by being operational over two years, the end-users established a reliance on the service that it would remain available.[3] When this important lifeline service is coupled with the detailed

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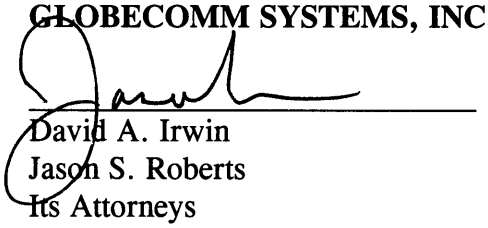
[2] As noted in *Exhibit A*, the only potential interference condition may occur with the NASA Precipitation RADAR (TRMM) and Scatterometers, but even if it did occur, the interference would be *de minimis*.

[3] GSI recently filed for and received an extension of the underlying STA while this petition for reconsideration remains pending.

technical analysis that shows the E990402 Application does in fact comply with the NTIA and Commission interference requirements, the Commission should allow the public interest to be served and reinstate and act on the E990402 Application.

Respectfully submitted,
GLOBECOMM SYSTEMS, INC.



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July 24, 2002

EXHIBIT
GLOBECOMM Systems Earth Station (E990402) Hauppauge, New York
Compliance with FCC Report & Order (FCC96-377) for the 13.75 - 14.0 GHz Band
Analysis and Calculations

1. Background

This Exhibit is presented to demonstrate the extent to which the proposed satellite earth station application for Hauppauge, New York is in compliance with FCC REPORT & ORDER 96-377 and how the proposed earth station will impact shipboard radiolocation operations (RADAR) and the NASA space research activities also in the 13.75 - 14.0 GHz Band.

Table 1. Earth Station Characteristics

• Coordinates (NAD 83):	40° 48' 54.45" N, 73° 14' 18.2" W
• Ground Elevation:	105 feet above mean sea level
• Satellite Location for Earth Station:	Hispasat 1-C, 30° W. L.
• Frequency Band:	13.75-14.0 GHz for uplink 11.7 – 12.2 GHz for downlink
• Polarizations:	Dual linear, V and H
• Modulation	Eight Carriers, Digital, 16 QAM Digital Bandwidths 15 and 18.4 MHz
• Maximum Required Uplink EIRP:	72.0 dBW per 15 MHz Digital Carrier
• Operational Frequencies	13.772 GHz (2), 13.812 GHz (2) 13.852 GHz (2), 13.892 GHz (2)
• Antenna Size:	9.0-meters in Diameter
Antenna Type/Model:	Vertex, Ku-Band
Gain:	60.3 dBi
• RF power into Antenna Flange:	-24.5 dBW/4 kHz Digital
• Elevation Angle:	25.6° at an Azimuth of 124.8°
• Side Lobe Antenna Gain:	32- 25*log(θ), or -10 dB for θ > 48°

Because the above spectrum is shared with the Federal Government, coordination in this band requires resolution data pertaining to potential interference between the earth station and both Navy Department and NASA systems. Potential interference from the earth station could impact with the Navy and/or NASA systems in five areas. These areas are noted in FCC Report and Order 96-377 dated September 1996, and consist of (1) Radiolocation and radio navigation, (2) Data Relay Satellites, (3) Precipitation Radar, (4) Altimeters, and (5) Scatterometers.

Summary of Coordination Issues:

1) Potential Impact to Government Radiolocation (Shipboard RADAR)
2) Potential Impact to NASA Data Relay Satellite Systems (TDRSS)
3) Potential Impact to NASA/NASDA Operations (Precipitation RADAR)
4) Potential Impact to NASA Operations (Altimeters)
5) Potential Impact to NASA Operations (Scatterometers)

2.0 Potential Impact to Government Radiolocation (Shipboard Radar)

Radiolocation operations (RADAR) may occur anywhere in the 13.4 - 14 GHz frequency band aboard ocean going United States Navy ships. The Federal Communication Commission (FCC) order 96-377 allocates the top 250 MHz of this 600 MHz band to the Fixed Satellite Service (FSS) on a co-primary basis with the radiolocation operations and provides for an interference protection level of -167 dBW/m^2/4 kHz.

The RADAR characteristics used for the calculations are presented in Table 2.

Table 2. RADAR Characteristics

Transmitter Parameters

Transmit Power*	250 kWatts
Frequency Range	13.4-14.0 GHz

Spectral Density Transmitted at the Tuned Frequency

Pulse Width**	0.5 μs	25.8 dBW/4kHz
Pulse Width**	1.0 μs	28.8 dBW/4kHz
Pulse Width**	2.0 μs	31.8 dBW/4kHz
Pulse Rate**		1200 pulses per second
Emission Characteristics		Sin(θ)/θ Roll-Off
Mode of Operation		Pulse Doppler Detection

Antenna Parameters

Shape*	Circular and Parabolic
Physical Size*	1.5 m^2
Antenna Gain at 14 GHz*	44.3 dB
Antenna Motion*	360° Rotation in Detection Mode Track Mode after Target lock-on and Weapon-on
Effective Area of Antenna	
Main Beam*	1.0 m^2
Side Lobe Gain	-10.0 dB
Antenna height	51 feet

Receiver Parameters

Noise Figure*	8 dB
Doppler Filter for Mach 1	31 kHz
Interference Criteria	-167 dB (W/m^2/4 kHz)

The closest distance to the shoreline from the Hauppauge, NY earth station is approximately 20 km southeast towards the Atlantic Ocean. The power spectral density was calculated to all points along the shoreline and is presented below.

The earth station's power flux density was calculated at the azimuths toward the shoreline from 100 degrees to 230 degrees. Over-the-horizon loss calculations were performed for 5 degree radials. The signal flux density at these points on the shoreline, considering over-the-horizon loss are calculated as follows and shown in Table 3 below:

PFD = Antenna Feed Power density (dBW/4 kHz) + Antenna Off-Axis Gain (dBi) – Spread Loss (dBW-m^2) – Over-the-Horizon Losses (dB)

Table 3. Power flux Density Levels from 9 m Earth Station to the Shoreline

Azimuth Toward The Coast (degrees)	RF Power Density (dBW/4 kHz)	ES Gain (dBi)	Distance to Shoreline (km)	Pathloss (dB)	PFD at Shoreline (dBW/m^2/4kHz)	Meets Interference Objective?
100	-23.1	-6.6	38.28	79.5	-211.9	Yes
105	-23.1	-5.6	32.47	60.8	-190.7	Yes
110	-23.1	-4.7	29.49	50.1	-178.3	Yes
115	-23.1	-3.9	27.4	43.2	-170.0	Yes
120	-23.1	-3.4	25.77	87.8	-213.5	Yes
125	-23.1	-3.2	23.99	88.7	-213.6	Yes
130	-23.1	-3.4	23.53	46.4	-171.4	Yes
135	-23.1	-4.0	22.76	90.7	-215.9	Yes
140	-23.1	-4.8	21.72	89.2	-214.8	Yes
145	-23.1	-5.7	20.58	43.3	-169.4	Yes
150	-23.1	-6.7	20.31	43.2	-170.2	Yes
155	-23.1	-7.7	20.21	43.1	-171.0	Yes
160	-23.1	-8.7	20.12	50.9	-179.8	Yes
165	-23.1	-9.7	19.99	51.3	-181.1	Yes
170	-23.1	-10.0	19.99	51.7	-181.8	Yes
175	-23.1	-10.0	20.85	51.3	-181.8	Yes
180	-23.1	-10.0	20.77	51.6	-182.0	Yes
185	-23.1	-10.0	21.13	51.7	-182.3	Yes
190	-23.1	-10.0	21.75	52.2	-183.0	Yes

195	-23.1	-10.0	21.97	51.5	-182.4	Yes
200	-23.1	-10.0	20.96	52.3	-182.8	Yes
205	-23.1	-10.0	22.83	54.8	-186.1	Yes
210	-23.1	-10.0	24.57	56.7	-188.6	Yes
215	-23.1	-10.0	27.94	56.7	-189.7	Yes
220	-23.1	-10.0	30.91	58.2	-192.1	Yes
225	-23.1	-10.0	35.43	69.3	-204.4	Yes
230	-23.1	-10.0	38.63	87.1	-222.9	Yes

These levels are in compliance with the interference criteria requirements of -167 $dBW/m^2/4kHz$. All profile data is attached in Annex 1.

3. Potential Impact to NASA's Data Relay Satellite System (TDRSS)

The geographic location of the GLOBECOMM Systems Earth Station (E990402) in Hauppauge, New York is outside the 390 KM radius coordination contour surrounding NASA's White Sands, New Mexico ground station complex. Therefore, the TDRSS space-to-earth link will not be impacted by the GLOBECOMM Earth Station at Hauppauge, New York.

The TDRSS space-to-space link (13.772 to 13.778 GHz) band is assumed to be protected if an earth station produces an EIRP less than 71dBW/6 MHz in this band. The 9.0-meter Earth Station antenna will have a worst case EIRP of 72 dBW/ 15 MHz, which equates to an EIRP of 68 dBW/ 6 MHz. Therefore, no interference to the TDRSS space-to-space link should occur when the Hauppauge Earth Station is transmitting.

4. Potential Impact to NASA/NASDA Operations (Precipitation RADAR)

The Tropical Rain Measuring Mission (TRMM) Precipitation RADAR (PR) operates at two frequencies 13793 and 13805 MHz with a bandwidth of 600 kHz at each frequency. The FCC Report and Order 96-377 grants NASA protection to the spacecraft borne sensors like those used for the TRMM in the 13.75 to 14.0 GHz band until January 1, 2000. The 9.0-meter antenna Earth Station system will have an EIRP of 58 dBW/ 600 kHz

The ITU-R SA. 1071 states that the recommended threshold of interference at the two TRMM frequencies is -150 dBW. The geographic location of the GE-Americom earth station antenna is outside the TRMM PR "ground truth" exclusion zones described in ITU-R SA. 1071. For the Hauppauge Earth Station antenna location, the antenna coupling to the space borne antennas can be earth station sidelobe to TRMM PR sidelobe, and earth station side lobe to TRMM PR main beam. The coupling to the TRMM PR main beam is the worst case; therefore, it will be the one calculated. The calculation will be made for an overhead pass of the TRMM PR satellite having a ±17° cross-track scan. The calculation will be made for scan angles of 0°, 8.5° and 17° and an earth station elevation angle of 25.6°.

Table 4. Calculation Parameters for TRMM PR

The parameters for the calculation are:

TRMM Range @0° Scan Angle:	350 km
TRMM Range @8.5° Scan Angle:	354 km
TRMM Range @ 17° Scan Angle:	366 km
TRMM Antenna Gain:	17.7dBi
Earth Station Elevation Angle:	25.6°
9.0-meter Antenna Gain:	60.3 dBi
Earth Station Side Lobe Antenna Gain:	32- 25*log(θ), or -10 dB for θ > 48° Where θ is the angle between the Earth Station antenna and the TRMM antenna.
Transmit Power	- 2.3 dBW/600 kHz
*FSL @ 350 km	166.2 dB
FSL @ 354 km	166.3 dB
FSL @ 366 km	166.6 dB

*FSL is free space loss

Table 5. TRMM PR Calculated Results

9.0-meter Antenna Transmit Power = - 2.3 dBW/600 kHz

Earth Station Antenna Elevation 25.6°					
Scan Angle	**ES Antenna Gain**	**TRMM Gain**	**FSL**	**Power Received**	**Margin**
0°	-10.0 dBi	47.7 dBi	166.2 dB	-130.8 dBW	-19.2 dB
8.5°	-10.0 dBi	47.7 dBi	166.3 dB	-130.9 dBW	-19.1 dB
17.0°	- 9.9 dBi	47.7 dBi	166.6 dB	- 131.2 dBW	-18.9 dB

From the calculated results for the TRMM PR the Hauppuage Earth Station will not meet the interference criteria for its planned transmit power. Therefore, the earth station at the Hauppague site should not be operated at the frequencies of the TRMM PR. **That is 13793 MHz ± 300 kHz and 13805 ± 300 kHz should be excluded frequencies for the Hauppauge Island earth station until after January 1, 2001.** The Hauppauge site should be able to transmit at the TRMM PR frequencies after the expiration date (January 1, 2001).

The earth station is within ± 55° latitude, and the elevation angle is 25.6°, which is below the maximum of 71° recommended in the ITU-R SA.1071.

5. Potential Impact to NASA Altimeter Operations

There are two types of airborne RADAR altimeters operating in the 13.75 - 14.0 GHz band that are of concern with respect to interference from earth stations. They are the TOPEX-POSEIDON and the ERS-1/2. These RADAR altimeters are downward looking pulsed-RADAR installed on orbiting spacecraft. These systems are used to very precisely measure range from the satellite to the surface of the earth. In addition to the operational RADAR in this band, a number of other systems are planned in the future. The parameters for the operational RADAR in this band are listed below.

Table 6. Altimeter Interference Criteria

RADAR System	Frequency of Operation	Interference Criteria
TOPEX-POSEIDON (1)	13.60 GHZ ⛁ 160 MHz	- 117 dBW/320 MHz
TOPEX-POSEIDON (2)	13.65 GHz ⛁ 160 MHz	- 130 dBW/320 MHz
ERS -1/2	13.77 GHz ⛁ 165 MHz	- 120 dBW/330 MHz

The orbiting spacecraft, with the RADAR altimeter, is assumed to be at an altitude of 800 km. The slant range from the earth station to the spacecraft at the antenna elevation angle (25.6°) is 1851 km, when the earth station main beam illuminates the spacecraft. This is the worst case alignment of the Earth Station antenna and the spacecraft RADAR antenna. It will occur when the spacecraft travels through the main beam circle formed by the Earth Station antenna. The time it takes the spacecraft to travel through this circle in space is a function of the 20-dB beam width of the earth station antennas (the 20-dB beam width is used according to ITU Ap28 calculation methods) and the speed of the of the spacecraft. The spacecraft is traveling at 6.5 km/sec and the 20-dB beam width of the 9.0-meter antenna is estimated to be 0.37°. The diameter of the circle in space formed by the 9.0-meter antenna at a range of 1851 km is 12 km. The spacecraft will pass through the beam width of the earth station antenna in less than 2 seconds. During this time there may be a small blip of noise introduced into the RADAR display output but it would be so transitory it may go unnoticed.

The availability requirement for the NASA altimeter data is 95%, which assumes that the associated individual outages are brief and randomly dispersed over all observation times and areas. If the outage were due to only one earth station the 95% availability would not be a problem. However, the outage caused by multiple earth stations and other causes such as intense rainfall must be accounted for in determining the net availability of the system. The earth station interference will occur in a predictable manner for a given area so it cannot be considered random. Because of its predictability and relatively short time duration, Earth Stations should have very little impact on the operation of present RADAR altimeter systems, and processing circuits and/or procedures can be designed in future systems to minimize the effect of the interference from single or multiple earth stations.

In order to calculate the interference level to the altimeter radar, we will assume that the RADAR antenna side lobe gain toward the earth station antenna is -10 dB. Since the earth

stations signal is narrow band compared to the RADAR bandwidth, the signals will be totally captured by the radar receiver. The following parameters are used in the calculation:

FSL for Earth Station Antenna:	180.7 dB
Atmospheric Absorption:	0.2 dB
EIRP 9.0-meter Earth Station Antenna:	72.0 dBW Digital Carrier

Table 7. Altimeter Calculated Results

Earth Station 25.6° Elevation for 72.0 dBW Digital Carrier		
RADAR Receiver	**Interference Level**	**Margin**
TOPEX-POSEIDON (1)	- 118.5 dBW	+ 1.5 dB
TOPEX-POSEIDON (2)	- 118.5 dBW	- 1.5 dB
ERS-1/2	- 118.5 dBW	- 11.5 dB

The comparison of the calculated levels to the interference criteria indicates that there will be interference coupled to some of the altimeters. The highest interference levels will be to the ERS-1/2 altimeter. The Earth Station interference effect will occur for less than 2 seconds. Even though potential interference is predicted to be generated by the Earth Station at Hauppauge the net result does not prevent the 95% availability of the RADAR altimeter data. The satellites carrying the altimeters orbit the earth every 2 hours. If we assume that the satellite will pass through the Earth Station main beam on each orbit, which is extremely unlikely, there will be a loss of 2 seconds of data every 2 hours (7200 seconds). The loss in data availability for this condition is .027 %. And the data availability with the Earth Station operating is 99.973%. This is well above the 95 % data availability required for a very pessimistic assumption.

The Hauppauge, New York Earth Station is located outside the TOPEX-POSEIDON critical exclusion zone as defined in the ITU-R Recommendation SA. 1071. The operational elevation look angle for the earth station is 25.6°. This elevation angle is below the 71°-elevation angle limitation required until January 1, 2001 in ITU-R Recommendation SA-1071.

6. Potential Impact to NASA Scatterometer Operations

Scatterometers are spacecraft borne RADAR type devices that measure the near surface vector winds over the ocean. Wind data over the oceans is considered a critical parameter in the determination of weather patterns and global climate. The overall availability requirement of the scatterometer system is similar to the altimeter RADAR. That is, some data loss is tolerable when interference signals exceed interference thresholds. The scatterometers can lose 1% of the ocean data from interference occurring systematically or 5% when the interference is occurring randomly. The scatterometers operate at a center frequency of 13995 MHz ⏃ 1.44 MHz. There are two types of antenna modes of operation, fan beam and spot beam. For fan beam operations the aggregate interference threshold is -174 dBW/2 kHz, while for spot beam operations, - 155 dBW/10 kHz. FSS earth stations should not exceed an EIRP density toward the scatterometer orbit (over the oceans) of 25 dBW in any 2 kHz band between 13.99356 GHz and 13.99644 GHz. The Earth Station at Hauppauge, New York can produce an EIRP that is greater than 25 dBW/2 kHz but not in the scatterometer frequency band. The Earth Station will operate at frequencies below the scatterometer's operational frequencies.

7. Coordination Issue Result Summary and Conclusions

The results of the analysis and calculations performed in this exhibit indicate that no interference will occur between the earth station at Hauppauge, New York and the U.S. Navy RADAR operations. The only potential interference condition occurs with the NASA Precipitation RADAR (TRMM) and the NASA Scatterometers and it is shown in this Exhibit that the data availability of the Scatterometers will be little effected by the interference generated.

Table 8. Excluded Frequency Range for GSI Earth Station

System	Frequency Restriction MHz
TRMM PR	13,792.7 – 13,793.3
TRMM PR	13,804.7 – 13,805.7
Scatterometers	13,993.56 – 13,996.44

GSI will exclude the above listed frequencies from their earth station operations.

Note: Can still transmit at TRMM PR frequencies since the protection date expires on January 1, 2001.

The NASA altimeter data availability requirement of 95 % will not be degraded by the Haupaguge, NY earth station operations.

No interference to NASA's Data relay Satellite Systems (TDRSS) space-to-earth operations from the Hauppauge earth station will occur.

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ANNEX 1 – Over-the Horizon Loss Calculations

Pathloss Calculation

Path data for case # 1	HAUPPAUGE		COAST 100	
Latitude	40 48 54.1		40 45 29.6	
Longitude	73 14 17.8		72 47 27.3	
Antenna Center Agl	12.14 ft.	3.70 m.	50.99 ft.	15.54 m.
Site Elevation Amsl	109.91 ft.	33.50 m.	0.00 ft.	0.00 m.
Antenna Center Amsl	122.05 ft.	37.20 m.	50.99 ft.	15.54 m.
Effective Antenna Ht ...	12.14 ft.	3.70 m.	50.99 ft.	15.54 m.
Horizon Distance	0.06 mi.	0.09 km.	7.88 mi.	12.68 km.
Horizon Elevation Amsl .	135.14 ft.	41.19 m.	61.06 ft.	18.61 m.
Ray Crossover Angle	46.32 mr.			
Terrain Delta Ht	26.75 ft.	8.15 m.		
Effective Distance	81.80 mi.	131.61 km.		
Pathlength	23.79 mi.	38.28 km.		
Azimuth	99.34 deg.		279.63 deg.	
Frequency	13750 MHz			
K Factor	1.33 (K)			

Radio Climate Phrase ... Maritime Temperate Climate Over Land
Type of Path ..... Irregular Terrain
Free Space Path Loss ... 146.8 dB Atmospheric Loss ... 0.907 dB
Diff. Loss .... 159.2 dB (306.1 dB) Tropo. Loss ... 90.1 dB (236.9 dB)
Terrain data type ..... 1.0 ARC Second

Losses	L-Fspl	Sigma	Controlling	Propagation Mode
226.3 dB	79.5 dB	3.9 dB	20. %	Troposcattering
215.4 dB	68.6 dB	5.6 dB	1. %	Troposcattering
209.0 dB	62.2 dB	6.8 dB	0.1 %	Troposcattering
203.9 dB	57.1 dB	7.8 dB	0.01 %	Troposcattering
202.7 dB	55.9 dB	8.1 dB	0.0025%	Troposcattering

The OH loss calculations considered a terrain profile of 1625 points.
The list below shows the highest point in each fiftieth of the path length.

Dist. (km.)	Elev. (m.)	Obstr. (m.)	K=Inf. Clrnce. (m.)	K= 1.33 Clrnce. (m.)	Dist. (km.)	Elev. (m.)	Obstr. (m.)	K=Inf. Clrnce. (m.)	K= 1.33 Clrnce. (m.)
0.00	33.5	3.7	0.0	0.0	19.17	15.8	0.0	10.6	-11.0
0.07	35.1	0.0	2.0	1.9	19.95	13.1	0.0	12.8	-8.7
0.09	35.1	5.9	-3.9	-4.1	21.43	15.8	0.0	9.3	-12.0
0.94	35.1	0.0	1.6	-0.5	22.09	15.9	0.0	8.8	-12.3
2.26	34.6	0.0	1.4	-3.4	22.42	17.0	0.0	7.5	-13.4
3.04	55.0	0.0	-19.5	-25.9	23.48	18.0	0.0	5.9	-14.6
3.21	57.2	0.0	-21.8	-28.4	23.98	16.7	0.0	6.9	-13.3
4.22	39.1	0.0	-4.3	-12.7	25.23	17.9	0.0	5.0	-14.4
4.60	35.7	0.0	-1.1	-10.2	25.58	18.6	0.0	4.1	-15.1
5.37	28.6	0.0	5.6	-4.9	26.10	17.0	0.0	5.4	-13.3
6.13	24.0	0.0	9.8	-1.8	26.81	13.1	0.0	9.0	-9.2
6.91	19.8	0.0	13.5	0.7	27.82	6.8	0.0	14.7	-2.5
8.42	27.2	0.0	5.2	-9.6	28.86	4.2	0.0	16.7	0.6
8.46	28.3	0.0	4.1	-10.8	29.10	2.5	0.0	18.2	2.5
9.36	27.5	0.0	4.4	-11.5	30.44	1.0	0.0	19.0	4.9
10.68	29.0	0.0	2.2	-15.2	31.13	7.3	0.0	12.3	-0.9
10.99	29.3	0.0	1.7	-16.0	31.46	6.7	0.0	12.7	0.0
11.55	26.0	0.0	4.7	-13.5	32.16	5.9	0.0	13.1	1.4
13.01	28.2	0.0	1.7	-17.7	32.94	5.0	0.0	13.6	3.2
13.70	32.5	0.0	-3.0	-22.9	34.45	3.0	0.0	14.7	7.0

13.79	32.3	0.0	-2.9	-22.8	34.69	3.6	0.0	14.0	6.6
14.69	30.9	0.0	-2.0	-22.5	35.28	1.1	0.0	16.2	9.9
15.91	30.3	0.0	-2.1	-23.1	36.01	0.0	0.0	16.8	12.0
16.08	28.2	0.0	-0.1	-21.1	36.76	0.0	0.0	16.4	13.1
16.98	25.9	0.0	1.7	-19.6	37.52	0.0	0.0	16.0	14.3
17.73	22.4	0.0	4.8	-16.7	38.28	0.0	15.5	0.0	0.0
18.39	17.9	0.0	8.9	-12.6					

Pathloss Calculation

Path data for case # 1	HAUPPAUGE		COAST 105	
Latitude	40 48 54.1		40 43 59.8	
Longitude	73 14 17.8		72 52 8.3	
Antenna Center Agl	12.14 ft.	3.70 m.	50.99 ft.	15.54 m.
Site Elevation Amsl	109.91 ft.	33.50 m.	0.00 ft.	0.00 m.
Antenna Center Amsl	122.05 ft.	37.20 m.	50.99 ft.	15.54 m.
Effective Antenna Ht ...	12.14 ft.	3.70 m.	50.99 ft.	15.54 m.
Horizon Distance	0.06 mi.	0.10 km.	11.54 mi.	18.57 km.
Horizon Elevation Amsl .	135.44 ft.	41.28 m.	108.27 ft.	33.00 m.
Ray Crossover Angle	46.47 mr.			
Terrain Delta Ht	23.85 ft.	7.27 m.		
Effective Distance	71.54 mi.	115.11 km.		
Pathlength	20.18 mi.	32.47 km.		
Azimuth	106.11 deg.		286.35 deg.	
Frequency	13750 MHz			
K Factor	1.33 (K)			

Radio Climate Phrase ... Maritime Temperate Climate Over Land
Type of Path ..... Three Single Knife Edges
Free Space Path Loss ... 145.4 dB Atmospheric Loss ... 0.770 dB
Diff. Loss .... 65.7 dB (211.1 dB) Tropo. Loss ... 90.7 dB (236.1 dB)
Terrain data type ..... 1.0 ARC Second

Losses	L-Fspl	Sigma	Controlling Propagation Mode
206.2 dB	60.8 dB	3.6 dB	20. % Diffraction
202.1 dB	56.7 dB	3.7 dB	1. % Diffraction
200.9 dB	55.5 dB	3.8 dB	0.1 % Diffraction
200.1 dB	54.7 dB	3.9 dB	0.01 % Diffraction
199.2 dB	53.8 dB	4.0 dB	0.0025% Diffraction

The OH loss calculations considered a terrain profile of 1363 points.
The list below shows the highest point in each fiftieth of the path length.

Dist. (km.)	Elev. (m.)	Obstr. (m.)	K=Inf. Clrnce. (m.)	K= 1.33 Clrnce. (m.)	Dist. (km.)	Elev. (m.)	Obstr. (m.)	K=Inf. Clrnce. (m.)	K= 1.33 Clrnce. (m.)
0.00	33.5	3.7	0.0	0.0	16.26	19.2	0.0	7.2	-8.4
0.07	35.2	0.0	2.0	1.8	17.40	19.0	0.0	6.6	-8.9
0.10	35.2	5.8	-3.9	-4.0	17.55	18.0	0.0	7.5	-7.9
0.95	38.0	0.0	-1.4	-3.2	18.72	11.8	0.0	13.0	-2.2
1.74	34.8	0.0	1.3	-1.9	18.84	11.0	0.0	13.6	-1.5
2.57	47.7	0.0	-12.2	-16.8	19.57	9.0	0.0	15.1	0.2
2.69	49.6	0.0	-14.2	-18.9	20.50	6.4	0.0	17.1	2.7
3.29	42.7	0.0	-7.7	-13.3	20.79	4.3	0.0	19.1	4.7
3.98	35.0	0.0	-0.4	-7.1	21.55	4.0	0.0	18.8	4.9
4.55	33.1	0.0	1.1	-6.4	22.53	5.8	0.0	16.4	3.1
5.51	25.0	0.0	8.5	-0.2	23.20	5.5	0.0	16.2	3.5
5.94	22.4	0.0	10.9	1.6	23.77	6.4	0.0	14.9	2.7
6.63	14.8	0.0	18.0	7.9	24.32	4.9	0.0	16.1	4.4
7.53	21.1	0.0	11.1	0.0	25.32	7.1	0.0	13.2	2.6
8.15	22.9	0.0	8.8	-2.9	25.37	8.5	0.0	11.7	1.1
8.99	27.5	0.0	3.7	-8.7	26.13	5.4	0.0	14.4	4.6
9.11	27.1	0.0	4.0	-8.5	26.64	0.0	0.0	19.4	10.3
9.75	25.1	0.0	5.6	-7.5	27.28	0.0	0.0	19.0	10.7
11.01	26.0	0.0	3.9	-10.1	27.95	0.0	0.0	18.6	11.1
11.06	26.0	0.0	3.8	-10.1	28.59	0.0	0.0	18.1	11.6
12.01	26.0	0.0	3.2	-11.3	29.86	0.6	0.0	16.7	12.1
12.87	23.9	0.0	4.8	-10.1	29.93	0.6	0.0	16.6	12.1

13.02	23.0	0.0	5.5	-9.4	30.52	0.0	0.0	16.8	13.3
13.90	33.0	0.0	-5.1	-20.3	31.19	0.0	0.0	16.4	14.0
14.54	22.8	0.0	4.7	-10.7	32.46	2.4	0.0	13.1	13.1
15.11	22.2	0.0	4.9	-10.6	32.47	0.0	15.5	0.0	0.0
15.93	21.7	0.0	4.8	-10.7					

Pathloss Calculation

Path data for case # 1	HAUPPAUGE		COAST 110	
Latitude	40 48 54.1		40 43 13.6	
Longitude	73 14 17.8		72 54 42.9	
Antenna Center Agl	12.14 ft.	3.70 m.	50.99 ft.	15.54 m.
Site Elevation Amsl	109.91 ft.	33.50 m.	0.00 ft.	0.00 m.
Antenna Center Amsl	122.05 ft.	37.20 m.	50.99 ft.	15.54 m.
Effective Antenna Ht ...	12.14 ft.	3.70 m.	50.99 ft.	15.54 m.
Horizon Distance	0.06 mi.	0.10 km.	8.68 mi.	13.97 km.
Horizon Elevation Amsl .	135.93 ft.	41.43 m.	67.06 ft.	20.44 m.
Ray Crossover Angle	46.89 mr.			
Terrain Delta Ht	21.14 ft.	6.44 m.		
Effective Distance	64.97 mi.	104.54 km.		
Pathlength	18.33 mi.	29.49 km.		
Azimuth	110.76 deg.		290.97 deg.	
Frequency	13750 MHz			
K Factor	1.33 (K)			

Radio Climate Phrase ... Maritime Temperate Climate Over Land
Type of Path ..... Three Single Knife Edges
Free Space Path Loss ... 144.6 dB Atmospheric Loss ... 0.699 dB
Diff. Loss .... 55.1 dB (199.7 dB) Tropo. Loss ... 91.3 dB (235.8 dB)
Terrain data type ..... 1.0 ARC Second

Losses	L-Fspl	Sigma	Controlling	Propagation Mode
194.6 dB	50.1 dB	3.6 dB	20. %	Diffraction
190.9 dB	46.4 dB	3.7 dB	1. %	Diffraction
189.9 dB	45.3 dB	3.8 dB	0.1 %	Diffraction
189.2 dB	44.6 dB	3.8 dB	0.01 %	Diffraction
188.4 dB	43.8 dB	3.9 dB	0.0025%	Diffraction

The OH loss calculations considered a terrain profile of 1225 points.
The list below shows the highest point in each fiftieth of the path length.

Dist. (km.)	Elev. (m.)	Obstr. (m.)	K=Inf. Clrnce. (m.)	K= 1.33 Clrnce. (m.)	Dist. (km.)	Elev. (m.)	Obstr. (m.)	K=Inf. Clrnce. (m.)	K= 1.33 Clrnce. (m.)
0.00	33.5	3.7	0.0	0.0	15.13	20.0	0.0	6.1	-6.7
0.10	35.3	6.1	-4.3	-4.5	15.52	20.4	0.0	5.4	-7.4
1.16	38.1	0.0	-1.7	-3.7	15.93	18.0	0.0	7.5	-5.2
1.59	38.7	0.0	-2.6	-5.3	16.53	15.8	0.0	9.2	-3.4
2.31	43.3	0.0	-7.8	-11.5	17.50	12.7	0.0	11.7	-0.7
2.60	44.2	0.0	-8.9	-13.0	17.71	10.7	0.0	13.5	1.2
2.99	38.7	0.0	-3.6	-8.3	18.34	11.4	0.0	12.3	0.3
3.54	34.4	0.0	0.2	-5.2	18.94	8.7	0.0	14.6	2.8
4.43	30.0	0.0	3.9	-2.6	19.67	6.2	0.0	16.6	5.2
4.72	23.5	0.0	10.2	3.3	20.20	2.9	0.0	19.5	8.4
5.42	22.3	0.0	11.0	3.3	20.66	1.2	0.0	20.8	10.1
5.90	21.2	0.0	11.7	3.5	21.24	0.0	0.0	21.6	11.3
7.06	14.0	0.0	18.0	8.7	21.84	0.0	0.0	21.2	11.3
7.64	17.9	0.0	13.7	3.8	22.42	0.0	0.0	20.7	11.4
8.24	20.9	0.0	10.2	-0.1	23.02	0.0	0.0	20.3	11.5
8.77	25.0	0.0	5.8	-4.9	23.60	0.0	0.0	19.9	11.7
8.92	25.0	0.0	5.7	-5.2	24.20	0.0	0.0	19.4	11.9
9.49	24.1	0.0	6.1	-5.1	24.78	0.0	0.0	19.0	12.1
10.05	22.0	0.0	7.8	-3.7	25.38	0.0	0.0	18.6	12.4
10.89	23.0	0.0	6.2	-5.7	25.96	0.0	0.0	18.1	12.7
11.30	23.0	0.0	5.9	-6.3	26.54	0.0	0.0	17.7	13.1
12.00	23.3	0.0	5.1	-7.3	27.14	0.0	0.0	17.3	13.5

12.39	21.8	0.0	6.3	-6.2	27.72	0.0	0.0	16.8	14.0
13.28	21.0	0.0	6.4	-6.3	28.88	0.9	0.0	15.1	14.1
13.57	20.0	0.0	7.2	-5.5	29.48	3.1	0.0	12.4	12.4
14.17	17.6	0.0	9.2	-3.6	29.49	0.0	15.5	0.0	0.0

Pathloss Calculation

Path data for case # 1	HAUPPAUGE		COAST 115	
Latitude	40 48 54.1		40 42 35.9	
Longitude	73 14 17.8		72 56 40.9	
Antenna Center Agl	12.14 ft.	3.70 m.	50.99 ft.	15.54 m.
Site Elevation Amsl	109.91 ft.	33.50 m.	0.00 ft.	0.00 m.
Antenna Center Amsl	122.05 ft.	37.20 m.	50.99 ft.	15.54 m.
Effective Antenna Ht ...	12.14 ft.	3.70 m.	50.99 ft.	15.54 m.
Horizon Distance	0.06 mi.	0.10 km.	16.06 mi.	25.84 km.
Horizon Elevation Amsl .	136.46 ft.	41.59 m.	158.93 ft.	48.44 m.
Ray Crossover Angle	47.97 mr.			
Terrain Delta Ht	27.26 ft.	8.31 m.		
Effective Distance	60.36 mi.	97.12 km.		
Pathlength	17.03 mi.	27.40 km.		
Azimuth	115.11 deg.		295.30 deg.	
Frequency	13750 MHz			
K Factor	1.33 (K)			

Radio Climate Phrase ... Maritime Temperate Climate Over Land
Type of Path ..... Two Single Knife Edges
Free Space Path Loss ... 143.9 dB Atmospheric Loss ... 0.649 dB
Diff. Loss .... 48.3 dB (192.2 dB) Tropo. Loss ... 91.8 dB (235.8 dB)
Terrain data type ..... 1.0 ARC Second

Losses	L-Fspl	Sigma	Controlling	Propagation Mode
187.1 dB	43.2 dB	3.6 dB	20. %	Diffraction
183.7 dB	39.8 dB	3.7 dB	1. %	Diffraction
182.7 dB	38.8 dB	3.7 dB	0.1 %	Diffraction
182.1 dB	38.2 dB	3.8 dB	0.01 %	Diffraction
181.3 dB	37.4 dB	3.9 dB	0.0025%	Diffraction

The OH loss calculations considered a terrain profile of 1124 points.
The list below shows the highest point in each fiftieth of the path length.

Dist. (km.)	Elev. (m.)	Obstr. (m.)	K=Inf. Clrnce. (m.)	K= 1.33 Clrnce. (m.)	Dist. (km.)	Elev. (m.)	Obstr. (m.)	K=Inf. Clrnce. (m.)	K= 1.33 Clrnce. (m.)
0.00	33.5	3.7	0.0	0.0	13.76	17.5	0.0	8.8	-2.3
0.10	35.5	6.1	-4.5	-4.6	14.47	16.0	0.0	9.8	-1.3
1.07	41.2	0.0	-4.8	-6.5	15.32	16.5	0.0	8.6	-2.3
1.56	48.4	0.0	-12.5	-14.9	15.35	16.2	0.0	8.9	-2.0
1.66	44.4	0.0	-8.5	-11.0	16.06	11.8	0.0	12.7	2.0
2.32	41.6	0.0	-6.2	-9.6	16.86	8.9	0.0	14.9	4.5
2.76	38.0	0.0	-3.0	-7.0	17.45	8.7	0.0	14.7	4.5
3.29	36.0	0.0	-1.4	-6.1	17.54	8.2	0.0	15.2	5.0
4.00	29.9	0.0	4.1	-1.4	18.11	6.2	0.0	16.7	6.8
4.39	23.8	0.0	9.9	3.9	18.77	2.5	0.0	19.9	10.3
5.37	22.0	0.0	11.0	4.0	19.18	1.5	0.0	20.5	11.2
5.49	17.6	0.0	15.2	8.1	19.74	0.0	0.0	21.6	12.7
6.05	13.2	0.0	19.2	11.6	20.28	0.0	0.0	21.2	12.7
6.93	14.0	0.0	17.7	9.4	20.84	0.0	0.0	20.7	12.7
7.56	18.0	0.0	13.2	4.4	21.38	0.0	0.0	20.3	12.7
8.03	17.0	0.0	13.9	4.7	21.94	0.0	0.0	19.9	12.8
8.64	22.9	0.0	7.4	-2.1	22.48	0.0	0.0	19.4	12.9
9.03	21.9	0.0	8.2	-1.6	23.01	0.0	0.0	19.0	13.1
9.86	21.6	0.0	7.8	-2.4	23.58	0.0	0.0	18.6	13.2
9.91	23.0	0.0	6.4	-3.8	24.11	0.0	0.0	18.1	13.5
10.95	25.0	0.0	3.5	-7.1	24.67	0.0	0.0	17.7	13.7
10.98	24.9	0.0	3.6	-7.0	25.21	0.0	0.0	17.3	14.0

11.64	20.6	0.0	7.4	-3.4	25.77	0.0	0.0	16.8	14.4
12.35	19.0	0.0	8.4	-2.5	26.31	0.0	0.0	16.4	14.7
12.61	18.0	0.0	9.2	-1.8	27.29	0.7	0.0	15.0	14.8
13.42	19.5	0.0	7.1	-4.0	27.40	0.0	15.5	0.0	0.0

Pathloss Calculation

Path data for case # 1	HAUPPAUGE		COAST 120	
Latitude	40 48 54.1		40 41 24.6	
Longitude	73 14 17.8		72 58 51.9	
Antenna Center Agl	12.14 ft.	3.70 m.	50.99 ft.	15.54 m.
Site Elevation Amsl	109.91 ft.	33.50 m.	0.00 ft.	0.00 m.
Antenna Center Amsl	122.05 ft.	37.20 m.	50.99 ft.	15.54 m.
Effective Antenna Ht ...	12.14 ft.	3.70 m.	50.99 ft.	15.54 m.
Horizon Distance	0.05 mi.	0.08 km.	15.10 mi.	24.29 km.
Horizon Elevation Amsl .	137.05 ft.	41.77 m.	164.38 ft.	50.10 m.
Ray Crossover Angle	63.91 mr.			
Terrain Delta Ht	31.42 ft.	9.58 m.		
Effective Distance	56.77 mi.	91.35 km.		
Pathlength	16.02 mi.	25.77 km.		
Azimuth	122.47 deg.		302.64 deg.	
Frequency	13750 MHz			
K Factor	1.33 (K)			

Radio Climate Phrase ... Maritime Temperate Climate Over Land
Type of Path ..... Irregular Terrain
Free Space Path Loss ... 143.4 dB Atmospheric Loss ... 0.611 dB
Diff. Loss .... 131.2 dB (274.6 dB) Tropo. Loss ... 95.9 dB (239.3 dB)
Terrain data type ..... 1.0 ARC Second

Losses	L-Fspl	Sigma	Controlling	Propagation Mode
231.2 dB	87.8 dB	3.6 dB	20. %	Troposcattering
227.9 dB	84.5 dB	4.0 dB	1. %	Troposcattering
225.7 dB	82.3 dB	4.3 dB	0.1 %	Troposcattering
223.5 dB	80.2 dB	4.6 dB	0.01 %	Troposcattering
223.1 dB	79.7 dB	4.6 dB	0.0025%	Troposcattering

The OH loss calculations considered a terrain profile of 1031 points.
The list below shows the highest point in each fiftieth of the path length.

Dist. (km.)	Elev. (m.)	Obstr. (m.)	K=Inf. Clrnce. (m.)	K= 1.33 Clrnce. (m.)	Dist. (km.)	Elev. (m.)	Obstr. (m.)	K=Inf. Clrnce. (m.)	K= 1.33 Clrnce. (m.)
0.00	33.5	3.7	0.0	0.0	13.09	13.3	0.0	12.9	3.1
0.08	35.7	6.3	-4.9	-5.0	13.47	12.5	0.0	13.4	3.6
0.10	35.8	6.1	-4.8	-5.0	13.92	12.5	0.0	13.0	3.3
1.03	44.8	0.0	-8.5	-10.0	14.94	7.9	0.0	16.7	7.2
1.48	50.1	0.0	-14.1	-16.3	15.07	8.5	0.0	16.1	6.6
1.55	42.4	0.0	-6.5	-8.7	15.47	7.4	0.0	16.8	7.4
2.50	40.0	0.0	-4.9	-8.3	16.07	6.0	0.0	17.7	8.5
2.58	39.0	0.0	-4.0	-7.5	17.00	2.5	0.0	20.5	11.7
3.10	36.0	0.0	-1.4	-5.6	17.07	2.9	0.0	20.0	11.2
3.88	33.8	0.0	0.1	-4.9	17.55	1.8	0.0	20.6	12.1
4.38	27.8	0.0	5.7	0.2	18.05	0.0	0.0	22.0	13.8
4.65	22.1	0.0	11.2	5.4	18.57	0.0	0.0	21.6	13.7
5.33	21.0	0.0	11.7	5.3	19.07	0.0	0.0	21.2	13.6
5.68	17.9	0.0	14.6	7.8	19.60	0.0	0.0	20.7	13.6
6.21	11.6	0.0	20.4	13.2	20.10	0.0	0.0	20.3	13.6
6.93	11.2	0.0	20.1	12.4	20.63	0.0	0.0	19.9	13.6
7.26	10.9	0.0	20.2	12.3	21.15	0.0	0.0	19.4	13.7
7.76	11.0	0.0	19.7	11.4	21.65	0.0	0.0	19.0	13.7
8.76	10.0	0.0	19.8	11.0	22.18	0.0	0.0	18.6	13.9
9.23	13.2	0.0	16.2	7.2	22.68	0.0	0.0	18.1	14.0
9.28	11.5	0.0	17.9	8.9	23.21	0.0	0.0	17.7	14.2
10.24	13.5	0.0	15.1	5.7	23.71	0.0	0.0	17.3	14.4

10.79	14.9	0.0	13.3	3.7	24.23	0.0	0.0	16.8	14.6
10.84	14.5	0.0	13.6	4.0	24.99	1.5	0.0	14.7	13.5
11.64	17.0	0.0	10.4	0.7	25.51	6.2	0.0	9.5	9.1
12.29	14.9	0.0	12.0	2.2	25.77	0.0	15.5	0.0	0.0
12.64	14.8	0.0	11.8	2.0					

Pathloss Calculation

Path data for case # 1	HAUPPAUGE		COAST 125	
Latitude	40 48 54.1		40 40 37.9	
Longitude	73 14 17.8		73 1 10.3	
Antenna Center Agl	12.14 ft.	3.70 m.	50.99 ft.	15.54 m.
Site Elevation Amsl	109.91 ft.	33.50 m.	0.00 ft.	0.00 m.
Antenna Center Amsl	122.05 ft.	37.20 m.	50.99 ft.	15.54 m.
Effective Antenna Ht ...	12.14 ft.	3.70 m.	50.99 ft.	15.54 m.
Horizon Distance	0.05 mi.	0.08 km.	14.13 mi.	22.73 km.
Horizon Elevation Amsl .	137.80 ft.	42.00 m.	162.61 ft.	49.56 m.
Ray Crossover Angle	65.09 mr.			
Terrain Delta Ht	33.78 ft.	10.30 m.		
Effective Distance	52.86 mi.	85.05 km.		
Pathlength	14.91 mi.	23.99 km.		
Azimuth	129.57 deg.		309.71 deg.	
Frequency	13750 MHz			
K Factor	1.33 (K)			

Radio Climate Phrase ... Maritime Temperate Climate Over Land
Type of Path ..... Irregular Terrain
Free Space Path Loss ... 142.8 dB Atmospheric Loss ... 0.569 dB
Diff. Loss .... 127.2 dB (270.0 dB) Tropo. Loss ... 96.5 dB (239.2 dB)
Terrain data type ..... 1.0 ARC Second

Losses	L-Fspl	Sigma	Controlling	Propagation Mode
231.4 dB	88.7 dB	3.6 dB	20. %	Troposcattering
228.7 dB	85.9 dB	3.9 dB	1. %	Troposcattering
226.8 dB	84.0 dB	4.1 dB	0.1 %	Troposcattering
225.1 dB	82.3 dB	4.3 dB	0.01 %	Troposcattering
224.7 dB	82.0 dB	4.4 dB	0.0025%	Troposcattering

The OH loss calculations considered a terrain profile of 932 points.
The list below shows the highest point in each fiftieth of the path length.

Dist. (km.)	Elev. (m.)	Obstr. (m.)	K=Inf. Clrnce. (m.)	K= 1.33 Clrnce. (m.)	Dist. (km.)	Elev. (m.)	Obstr. (m.)	K=Inf. Clrnce. (m.)	K= 1.33 Clrnce. (m.)
0.00	33.5	3.7	0.0	0.0	12.47	11.4	0.0	14.5	6.0
0.08	35.9	6.1	-4.9	-5.0	12.50	11.2	0.0	14.7	6.2
0.26	36.7	6.1	-5.8	-6.1	13.22	7.8	0.0	17.4	9.0
0.95	42.4	0.0	-6.1	-7.4	13.61	7.0	0.0	17.9	9.6
1.26	49.6	0.0	-13.5	-15.2	13.97	6.9	0.0	17.7	9.4
1.60	43.3	0.0	-7.6	-9.7	14.61	5.2	0.0	18.8	10.7
1.93	34.7	0.0	0.8	-1.7	14.97	5.2	0.0	18.5	10.5
2.86	35.5	0.0	-0.9	-4.4	15.51	4.6	0.0	18.6	10.9
2.89	35.6	0.0	-1.0	-4.6	15.85	2.8	0.0	20.1	12.5
3.37	33.1	0.0	1.0	-3.1	16.34	0.0	0.0	22.4	15.1
3.99	28.4	0.0	5.2	0.5	16.80	0.0	0.0	22.0	14.9
4.35	27.0	0.0	6.2	1.2	17.29	0.0	0.0	21.6	14.8
4.82	20.1	0.0	12.8	7.3	17.76	0.0	0.0	21.2	14.6
5.69	18.0	0.0	14.1	7.9	18.25	0.0	0.0	20.7	14.5
6.00	18.0	0.0	13.8	7.4	18.74	0.0	0.0	20.3	14.5
6.42	19.5	0.0	11.9	5.2	19.20	0.0	0.0	19.9	14.4
6.88	19.0	0.0	12.0	5.0	19.69	0.0	0.0	19.4	14.4
7.21	16.9	0.0	13.8	6.6	20.15	0.0	0.0	19.0	14.4
7.86	13.9	0.0	16.2	8.7	20.64	0.0	0.0	18.6	14.5
8.17	12.4	0.0	17.4	9.8	21.13	0.0	0.0	18.1	14.6
8.94	8.8	0.0	20.3	12.4	21.60	0.0	0.0	17.7	14.7
9.12	7.3	0.0	21.6	13.6	22.09	0.0	0.0	17.3	14.8

9.84	2.0	0.0	26.3	18.1	22.55	0.0	0.0	16.8	14.9
10.28	3.9	0.0	24.0	15.7	23.04	0.0	0.0	16.4	15.1
10.72	3.0	0.0	24.5	16.1	23.82	4.7	0.0	11.0	10.8
11.36	4.6	0.0	22.4	13.9	23.99	0.0	15.5	0.0	0.0
11.93	5.7	0.0	20.7	12.2					

Pathloss Calculation

Path data for case # 1	HAUPPAUGE		COAST 130	
Latitude	40 48 54.1		40 40 32.0	
Longitude	73 14 17.8		73 1 42.6	
Antenna Center Agl	12.14 ft.	3.70 m.	50.99 ft.	15.54 m.
Site Elevation Amsl	109.91 ft.	33.50 m.	0.00 ft.	0.00 m.
Antenna Center Amsl	122.05 ft.	37.20 m.	50.99 ft.	15.54 m.
Effective Antenna Ht ...	12.14 ft.	3.70 m.	50.99 ft.	15.54 m.
Horizon Distance	0.05 mi.	0.08 km.	13.82 mi.	22.24 km.
Horizon Elevation Amsl .	137.97 ft.	42.05 m.	166.51 ft.	50.75 m.
Ray Crossover Angle	65.38 mr.			
Terrain Delta Ht	29.99 ft.	9.14 m.		
Effective Distance	51.85 mi.	83.42 km.		
Pathlength	14.63 mi.	23.53 km.		
Azimuth	131.09 deg.		311.23 deg.	
Frequency	13750 MHz			
K Factor	1.33 (K)			

Radio Climate Phrase ... Maritime Temperate Climate Over Land
Type of Path ..... Two Single Knife Edges
Free Space Path Loss ... 142.6 dB Atmospheric Loss ... 0.558 dB
Diff. Loss .... 51.6 dB (194.2 dB) Tropo. Loss ... 96.6 dB (239.2 dB)
Terrain data type ..... 1.0 ARC Second

Losses	L-Fspl	Sigma	Controlling Propagation Mode	
189.0 dB	46.4 dB	3.6 dB	20. %	Diffraction
186.1 dB	43.5 dB	3.6 dB	1. %	Diffraction
185.3 dB	42.7 dB	3.7 dB	0.1 %	Diffraction
184.7 dB	42.1 dB	3.7 dB	0.01 %	Diffraction
184.1 dB	41.5 dB	3.8 dB	0.0025%	Diffraction

The OH loss calculations considered a terrain profile of 908 points.
The list below shows the highest point in each fiftieth of the path length.

Dist. (km.)	Elev. (m.)	Obstr. (m.)	K=Inf. Clrnce. (m.)	K= 1.33 Clrnce. (m.)	Dist. (km.)	Elev. (m.)	Obstr. (m.)	K=Inf. Clrnce. (m.)	K= 1.33 Clrnce. (m.)
0.00	33.5	3.7	0.0	0.0	12.19	4.3	0.0	21.6	13.5
0.08	36.0	6.0	-4.9	-5.0	12.27	4.6	0.0	21.3	13.2
0.26	36.9	6.1	-6.0	-6.4	12.71	3.5	0.0	22.0	13.9
0.93	42.1	0.0	-5.8	-7.0	13.62	5.1	0.0	19.6	11.6
1.30	50.8	0.0	-14.7	-16.4	13.78	5.9	0.0	18.6	10.7
1.58	43.8	0.0	-8.0	-10.1	14.14	3.8	0.0	20.4	12.6
1.92	36.2	0.0	-0.8	-3.3	14.61	3.3	0.0	20.5	12.8
2.75	35.0	0.0	-0.3	-3.7	15.07	3.0	0.0	20.3	12.8
2.83	34.5	0.0	0.1	-3.4	15.54	1.2	0.0	21.7	14.4
3.32	32.4	0.0	1.7	-2.2	16.01	0.0	0.0	22.5	15.4
3.79	30.0	0.0	3.8	-0.7	16.48	0.0	0.0	22.0	15.2
4.38	28.9	0.0	4.2	-0.7	16.97	0.0	0.0	21.6	15.0
4.72	24.1	0.0	8.8	3.5	17.44	0.0	0.0	21.2	14.9
5.58	18.6	0.0	13.5	7.6	17.90	0.0	0.0	20.7	14.8
6.10	17.1	0.0	14.4	8.2	18.37	0.0	0.0	20.3	14.7
6.17	18.0	0.0	13.5	7.2	18.84	0.0	0.0	19.9	14.6
6.85	17.0	0.0	13.9	7.2	19.30	0.0	0.0	19.4	14.6
7.16	18.8	0.0	11.8	4.9	19.77	0.0	0.0	19.0	14.6
7.68	14.1	0.0	16.0	8.9	20.24	0.0	0.0	18.6	14.6
8.15	14.1	0.0	15.6	8.2	20.73	0.0	0.0	18.1	14.7
8.77	8.6	0.0	20.6	12.9	21.20	0.0	0.0	17.7	14.8
9.03	8.0	0.0	20.9	13.2	21.67	0.0	0.0	17.3	14.9

9.55	5.0	0.0	23.4	15.5	22.13	0.0	0.0	16.8	15.0
9.91	2.7	0.0	25.4	17.5	22.60	0.0	0.0	16.4	15.2
10.82	3.2	0.0	24.0	15.9	23.51	4.7	0.0	10.8	10.8
11.15	4.4	0.0	22.6	14.4	23.53	0.0	15.5	0.0	0.0
11.52	3.7	0.0	22.9	14.8					

Pathloss Calculation

Path data for case # 1	HAUPPAUGE		COAST 135	
Latitude	40 48 54.1		40 39 57.1	
Longitude	73 14 17.8		73 3 12.3	
Antenna Center Agl	12.14 ft.	3.70 m.	50.99 ft.	15.54 m.
Site Elevation Amsl	109.91 ft.	33.50 m.	0.00 ft.	0.00 m.
Antenna Center Amsl	122.05 ft.	37.20 m.	50.99 ft.	15.54 m.
Effective Antenna Ht ...	12.14 ft.	3.70 m.	50.99 ft.	15.54 m.
Horizon Distance	0.05 mi.	0.08 km.	13.37 mi.	21.51 km.
Horizon Elevation Amsl .	138.26 ft.	42.14 m.	171.83 ft.	52.37 m.
Ray Crossover Angle	65.01 mr.			
Terrain Delta Ht	31.88 ft.	9.72 m.		
Effective Distance	51.53 mi.	82.91 km.		
Pathlength	14.15 mi.	22.76 km.		
Azimuth	136.63 deg.		316.75 deg.	
Frequency	17550 MHz			
K Factor	1.33 (K)			

Radio Climate Phrase ... Maritime Temperate Climate Over Land
Type of Path ..... Irregular Terrain
Free Space Path Loss ... 144.4 dB Atmospheric Loss ... 1.187 dB
Diff. Loss .... 147.5 dB (291.9 dB) Tropo. Loss ... 98.3 dB (242.8 dB)
Terrain data type ..... 1.0 ARC Second

Losses	L-Fspl	Sigma	Controlling	Propagation Mode
235.1 dB	90.7 dB	3.6 dB	20. %	Troposcattering
232.5 dB	88.1 dB	3.8 dB	1. %	Troposcattering
230.7 dB	86.3 dB	4.0 dB	0.1 %	Troposcattering
229.2 dB	84.8 dB	4.2 dB	0.01 %	Troposcattering
228.9 dB	84.4 dB	4.3 dB	0.0025%	Troposcattering

The OH loss calculations considered a terrain profile of 857 points.
The list below shows the highest point in each fiftieth of the path length.

Dist. (km.)	Elev. (m.)	Obstr. (m.)	K=Inf. Clrnce. (m.)	K= 1.33 Clrnce. (m.)	Dist. (km.)	Elev. (m.)	Obstr. (m.)	K=Inf. Clrnce. (m.)	K= 1.33 Clrnce. (m.)
0.00	33.5	3.7	0.0	0.0	11.76	1.8	0.0	24.2	16.6
0.08	36.0	6.0	-4.9	-5.0	11.84	1.6	0.0	24.4	16.7
0.24	37.8	6.1	-7.0	-7.3	12.30	1.5	0.0	24.0	16.4
0.90	42.5	0.0	-6.1	-7.3	12.75	1.2	0.0	23.8	16.3
1.22	52.4	0.0	-16.4	-17.9	13.23	0.9	0.0	23.7	16.3
1.38	43.9	0.0	-8.0	-9.8	13.68	0.1	0.0	24.1	16.8
1.84	39.6	0.0	-4.1	-6.4	14.13	0.0	0.0	23.8	16.6
2.29	38.0	0.0	-2.9	-5.7	14.59	0.0	0.0	23.3	16.3
2.85	30.4	0.0	4.1	0.8	15.04	0.0	0.0	22.9	16.0
3.57	31.7	0.0	2.1	-1.9	15.49	0.0	0.0	22.5	15.8
3.65	30.0	0.0	3.7	-0.4	15.94	0.0	0.0	22.0	15.6
4.12	27.0	0.0	6.3	1.7	16.40	0.0	0.0	21.6	15.4
4.68	26.2	0.0	6.5	1.6	16.85	0.0	0.0	21.2	15.3
5.03	24.8	0.0	7.7	2.4	17.30	0.0	0.0	20.7	15.2
5.85	15.7	0.0	15.9	10.1	17.78	0.0	0.0	20.3	15.1
6.15	18.0	0.0	13.4	7.3	18.23	0.0	0.0	19.9	15.0
6.79	16.7	0.0	14.1	7.7	18.69	0.0	0.0	19.4	14.9
6.84	16.4	0.0	14.3	7.8	19.14	0.0	0.0	19.0	14.9
7.29	15.0	0.0	15.2	8.6	19.59	0.0	0.0	18.6	14.9
7.90	12.9	0.0	16.7	9.8	20.04	0.0	0.0	18.1	14.9
8.25	12.0	0.0	17.4	10.3	20.50	0.0	0.0	17.7	15.0
8.78	4.0	0.0	24.8	17.6	20.95	0.0	0.0	17.3	15.0

9.50	4.0	0.0	24.2	16.7	21.40	0.0	0.0	16.8	15.1
9.58	3.3	0.0	24.8	17.3	22.31	0.1	0.0	15.8	15.2
10.22	3.0	0.0	24.4	16.9	22.52	4.6	0.0	11.2	10.8
10.49	1.8	0.0	25.4	17.8	22.76	0.0	15.5	0.0	0.0
11.15	2.9	0.0	23.7	16.1					

Pathloss Calculation

Path data for case # 1	HAUPPAUGE		COAST 140	
Latitude	40 48 54.1		40 39 43.3	
Longitude	73 14 17.8		73 4 41.2	
Antenna Center Agl	12.14 ft.	3.70 m.	50.99 ft.	15.54 m.
Site Elevation Amsl	109.91 ft.	33.50 m.	0.00 ft.	0.00 m.
Antenna Center Amsl	122.05 ft.	37.20 m.	50.99 ft.	15.54 m.
Effective Antenna Ht ...	12.14 ft.	3.70 m.	50.99 ft.	15.54 m.
Horizon Distance	0.05 mi.	0.08 km.	12.87 mi.	20.71 km.
Horizon Elevation Amsl .	138.43 ft.	42.19 m.	151.98 ft.	46.32 m.
Ray Crossover Angle	63.91 mr.			
Terrain Delta Ht	24.19 ft.	7.37 m.		
Effective Distance	47.85 mi.	76.99 km.		
Pathlength	13.50 mi.	21.72 km.		
Azimuth	141.42 deg.		321.52 deg.	
Frequency	13750 MHz			
K Factor	1.33 (K)			

Radio Climate Phrase ... Maritime Temperate Climate Over Land
Type of Path ..... Irregular Terrain
Free Space Path Loss ... 141.9 dB Atmospheric Loss ... 0.515 dB
Diff. Loss .... 108.5 dB (250.4 dB) Tropo. Loss ... 96.6 dB (238.5 dB)
Terrain data type ..... 1.0 ARC Second

Losses	L-Fspl	Sigma	Controlling Propagation Mode	
231.1 dB	89.2 dB	3.6 dB	20. %	Troposcattering
229.1 dB	87.2 dB	3.7 dB	1. %	Troposcattering
227.6 dB	85.7 dB	3.9 dB	0.1 %	Troposcattering
226.4 dB	84.5 dB	4.0 dB	0.01 %	Troposcattering
226.2 dB	84.3 dB	4.1 dB	0.0025%	Troposcattering

The OH loss calculations considered a terrain profile of 799 points.
The list below shows the highest point in each fiftieth of the path length.

Dist. (km.)	Elev. (m.)	Obstr. (m.)	K=Inf. Clrnce. (m.)	K= 1.33 Clrnce. (m.)	Dist. (km.)	Elev. (m.)	Obstr. (m.)	K=Inf. Clrnce. (m.)	K= 1.33 Clrnce. (m.)
0.00	33.5	3.7	0.0	0.0	11.25	1.3	0.0	24.7	17.8
0.08	36.1	5.9	-4.9	-5.0	11.44	1.5	0.0	24.3	17.3
0.25	38.4	6.1	-7.6	-7.9	11.74	1.5	0.0	24.0	17.1
0.84	41.2	0.0	-4.8	-5.8	12.17	0.9	0.0	24.1	17.3
0.98	46.3	0.0	-10.1	-11.3	12.61	0.0	0.0	24.6	17.9
1.31	44.1	0.0	-8.2	-9.8	13.23	0.9	0.0	23.1	16.5
1.96	40.0	0.0	-4.8	-7.0	13.83	1.5	0.0	21.9	15.4
2.21	37.0	0.0	-2.0	-4.5	13.92	0.3	0.0	23.0	16.6
2.61	29.6	0.0	5.0	2.1	14.35	0.0	0.0	22.9	16.7
3.35	28.6	0.0	5.3	1.7	14.79	0.0	0.0	22.5	16.4
3.89	27.2	0.0	6.2	2.1	15.22	0.0	0.0	22.0	16.2
3.98	29.0	0.0	4.2	0.1	15.66	0.0	0.0	21.6	16.0
4.36	26.1	0.0	6.8	2.3	16.10	0.0	0.0	21.1	15.8
4.96	22.6	0.0	9.7	4.8	16.53	0.0	0.0	20.7	15.7
5.36	20.6	0.0	11.3	6.1	16.97	0.0	0.0	20.3	15.5
5.66	16.0	0.0	15.6	10.2	17.38	0.0	0.0	19.9	15.4
6.45	15.4	0.0	15.4	9.6	17.81	0.0	0.0	19.4	15.3
6.53	14.9	0.0	15.7	9.9	18.25	0.0	0.0	19.0	15.3
7.00	15.0	0.0	15.2	9.2	18.68	0.0	0.0	18.6	15.2
7.65	14.0	0.0	15.6	9.2	19.12	0.0	0.0	18.1	15.2
8.25	12.8	0.0	16.2	9.6	19.56	0.0	0.0	17.7	15.2
8.31	13.4	0.0	15.5	8.9	19.99	0.0	0.0	17.3	15.2

8.71	10.8	0.0	17.7	11.0	20.43	0.0	0.0	16.8	15.3
9.26	9.1	0.0	18.8	12.0	20.86	0.0	0.0	16.4	15.3
9.56	9.1	0.0	18.5	11.7	21.71	3.7	0.0	11.9	11.9
10.16	9.1	0.0	17.9	11.0	21.72	0.0	15.5	0.0	0.0
10.59	7.7	0.0	18.9	12.0					

Pathloss Calculation

Path data for case # 1	HAUPPAUGE		COAST 145	
Latitude	40 48 54.1		40 39 35.7	
Longitude	73 14 17.8		73 6 18.0	
Antenna Center Agl	12.14 ft.	3.70 m.	50.99 ft.	15.54 m.
Site Elevation Amsl	109.91 ft.	33.50 m.	0.00 ft.	0.00 m.
Antenna Center Amsl	122.05 ft.	37.20 m.	50.99 ft.	15.54 m.
Effective Antenna Ht ...	12.14 ft.	3.70 m.	50.99 ft.	15.54 m.
Horizon Distance	0.05 mi.	0.08 km.	12.63 mi.	20.33 km.
Horizon Elevation Amsl .	138.62 ft.	42.25 m.	148.47 ft.	45.25 m.
Ray Crossover Angle	62.93 mr.			
Terrain Delta Ht	21.03 ft.	6.41 m.		
Effective Distance	45.34 mi.	72.95 km.		
Pathlength	12.79 mi.	20.58 km.		
Azimuth	146.79 deg.		326.87 deg.	
Frequency	13750 MHz			
K Factor	1.33 (K)			

Radio Climate Phrase ... Maritime Temperate Climate Over Land
Type of Path ..... Rounded Single Object
Free Space Path Loss ... 141.4 dB Atmospheric Loss ... 0.488 dB
Diff. Loss .... 48.5 dB (190.0 dB) Tropo. Loss ... 96.6 dB (238.0 dB)
Terrain data type ..... 1.0 ARC Second

Losses	L-Fspl	Sigma	Controlling Propagation Mode	
184.7 dB	43.3 dB	3.6 dB	20. %	Diffraction
182.2 dB	40.7 dB	3.6 dB	1. %	Diffraction
181.5 dB	40.0 dB	3.7 dB	0.1 %	Diffraction
181.0 dB	39.6 dB	3.7 dB	0.01 %	Diffraction
180.5 dB	39.0 dB	3.8 dB	0.0025%	Diffraction

The OH loss calculations considered a terrain profile of 738 points.
The list below shows the highest point in each fiftieth of the path length.

Dist. (km.)	Elev. (m.)	Obstr. (m.)	K=Inf. Clrnce. (m.)	K= 1.33 Clrnce. (m.)	Dist. (km.)	Elev. (m.)	Obstr. (m.)	K=Inf. Clrnce. (m.)	K= 1.33 Clrnce. (m.)
0.00	33.5	3.7	0.0	0.0	10.31	11.9	0.0	14.4	8.2
0.08	36.2	5.8	-4.9	-5.0	10.70	7.2	0.0	18.8	12.5
0.25	39.2	6.1	-8.3	-8.6	11.12	6.0	0.0	19.5	13.3
0.81	39.1	0.0	-2.7	-3.7	11.54	5.8	0.0	19.3	13.1
0.92	43.4	0.0	-7.2	-8.2	12.02	4.9	0.0	19.7	13.6
1.26	41.2	0.0	-5.3	-6.7	12.35	4.7	0.0	19.5	13.6
1.65	38.0	0.0	-2.5	-4.4	12.77	3.7	0.0	20.1	14.2
2.46	36.0	0.0	-1.4	-4.0	13.19	1.9	0.0	21.4	15.7
2.49	36.0	0.0	-1.4	-4.1	13.97	1.2	0.0	21.3	15.8
2.91	31.9	0.0	2.3	-0.7	14.00	1.2	0.0	21.2	15.8
3.44	26.0	0.0	7.6	4.1	14.42	0.0	0.0	22.0	16.8
3.80	21.9	0.0	11.3	7.5	14.84	0.0	0.0	21.6	16.6
4.41	20.8	0.0	11.7	7.5	15.23	0.0	0.0	21.2	16.4
4.72	21.5	0.0	10.7	6.3	15.65	0.0	0.0	20.7	16.2
5.00	20.1	0.0	11.9	7.3	16.07	0.0	0.0	20.3	16.0
5.64	21.5	0.0	9.8	4.8	16.49	0.0	0.0	19.8	15.9
5.78	19.5	0.0	11.6	6.5	16.88	0.0	0.0	19.4	15.8
6.18	15.4	0.0	15.3	10.0	17.30	0.0	0.0	19.0	15.6
6.59	13.7	0.0	16.5	11.1	17.72	0.0	0.0	18.5	15.6
7.41	12.0	0.0	17.4	11.6	18.11	0.0	0.0	18.1	15.5
7.46	12.7	0.0	16.6	10.9	18.53	0.0	0.0	17.7	15.5
7.82	12.6	0.0	16.4	10.5	18.95	0.0	0.0	17.3	15.4

8.30	10.0	0.0	18.5	12.5	19.37	0.0	0.0	16.8	15.4
9.03	10.5	0.0	17.2	11.1	19.76	0.0	0.0	16.4	15.4
9.28	11.8	0.0	15.6	9.5	20.18	0.0	0.0	16.0	15.5
9.47	9.1	0.0	18.2	12.0	20.58	0.0	15.5	0.0	0.0
10.28	10.3	0.0	16.0	9.8					

Pathloss Calculation

Path data for case # 1	HAUPPAUGE		COAST 150	
Latitude	40 48 54.1		40 39 21.2	
Longitude	73 14 17.8		73 7 10.8	
Antenna Center Agl	12.14 ft.	3.70 m.	50.99 ft.	15.54 m.
Site Elevation Amsl	109.91 ft.	33.50 m.	0.00 ft.	0.00 m.
Antenna Center Amsl	122.05 ft.	37.20 m.	50.99 ft.	15.54 m.
Effective Antenna Ht ...	12.14 ft.	3.70 m.	50.99 ft.	15.54 m.
Horizon Distance	0.05 mi.	0.09 km.	12.47 mi.	20.06 km.
Horizon Elevation Amsl .	138.75 ft.	42.29 m.	149.55 ft.	45.58 m.
Ray Crossover Angle	62.40 mr.			
Terrain Delta Ht	22.36 ft.	6.82 m.		
Effective Distance	44.76 mi.	72.02 km.		
Pathlength	12.63 mi.	20.31 km.		
Azimuth	150.41 deg.		330.49 deg.	
Frequency	13750 MHz			
K Factor	1.33 (K)			

Radio Climate Phrase ... Maritime Temperate Climate Over Land
Type of Path ..... Rounded Single Object
Free Space Path Loss ... 141.3 dB Atmospheric Loss ... 0.482 dB
Diff. Loss .... 48.5 dB (189.8 dB) Tropo. Loss ... 96.5 dB (237.8 dB)
Terrain data type ..... 1.0 ARC Second

Losses	L-Fspl	Sigma	Controlling	Propagation Mode
184.5 dB	43.2 dB	3.6 dB	20. %	Diffraction
182.0 dB	40.7 dB	3.6 dB	1. %	Diffraction
181.3 dB	40.0 dB	3.7 dB	0.1 %	Diffraction
180.9 dB	39.6 dB	3.7 dB	0.01 %	Diffraction
180.4 dB	39.0 dB	3.7 dB	0.0025%	Diffraction

The OH loss calculations considered a terrain profile of 716 points.
The list below shows the highest point in each fiftieth of the path length.

Dist. (km.)	Elev. (m.)	Obstr. (m.)	K=Inf. Clrnce. (m.)	K= 1.33 Clrnce. (m.)	Dist. (km.)	Elev. (m.)	Obstr. (m.)	K=Inf. Clrnce. (m.)	K= 1.33 Clrnce. (m.)
0.00	33.5	3.7	0.0	0.0	10.18	7.0	0.0	19.4	13.3
0.09	36.2	5.8	-4.9	-5.0	10.57	6.4	0.0	19.5	13.5
0.26	39.5	6.1	-8.7	-9.0	11.26	5.8	0.0	19.4	13.4
0.80	37.0	0.0	-0.6	-1.5	11.40	5.5	0.0	19.5	13.6
1.19	39.9	0.0	-4.0	-5.3	11.80	4.8	0.0	19.8	13.9
1.22	40.0	0.0	-4.1	-5.4	12.20	4.6	0.0	19.6	13.8
1.65	36.4	0.0	-0.9	-2.7	12.62	4.6	0.0	19.2	13.4
2.42	35.0	0.0	-0.4	-2.9	13.02	3.3	0.0	20.0	14.4
2.44	35.0	0.0	-0.4	-3.0	13.42	2.4	0.0	20.5	15.1
2.87	33.0	0.0	1.1	-1.8	13.82	1.5	0.0	20.9	15.7
3.47	30.7	0.0	2.8	-0.7	14.24	1.5	0.0	20.5	15.4
3.67	28.0	0.0	5.3	1.7	14.64	1.5	0.0	20.1	15.2
4.18	22.5	0.0	10.3	6.3	15.04	0.0	0.0	21.2	16.5
4.52	21.6	0.0	10.8	6.6	15.47	0.0	0.0	20.7	16.3
5.09	18.2	0.0	13.6	9.0	15.86	0.0	0.0	20.3	16.1
5.29	16.1	0.0	15.5	10.8	16.26	0.0	0.0	19.9	16.0
5.71	14.1	0.0	17.0	12.0	16.66	0.0	0.0	19.4	15.8
6.28	14.1	0.0	16.4	11.2	17.09	0.0	0.0	19.0	15.7
6.54	12.9	0.0	17.4	12.1	17.48	0.0	0.0	18.6	15.6
6.96	11.6	0.0	18.2	12.7	17.88	0.0	0.0	18.1	15.6
7.70	9.4	0.0	19.6	13.8	18.31	0.0	0.0	17.7	15.5
7.79	11.6	0.0	17.3	11.5	18.71	0.0	0.0	17.3	15.5

8.13	10.4	0.0	18.2	12.3	19.11	0.0	0.0	16.8	15.5
8.87	9.4	0.0	18.3	12.3	19.50	0.0	0.0	16.4	15.5
9.07	9.7	0.0	17.8	11.8	20.30	0.1	0.0	15.5	15.5
9.35	7.7	0.0	19.5	13.5	20.31	0.0	15.5	0.0	0.0
9.78	7.6	0.0	19.2	13.1					

Pathloss Calculation

Path data for case # 1	HAUPPAUGE		COAST 155	
Latitude	40 48 54.1		40 39 1.0	
Longitude	73 14 17.8		73 8 11.7	
Antenna Center Agl	12.14 ft.	3.70 m.	50.99 ft.	15.54 m.
Site Elevation Amsl	109.91 ft.	33.50 m.	0.00 ft.	0.00 m.
Antenna Center Amsl	122.05 ft.	37.20 m.	50.99 ft.	15.54 m.
Effective Antenna Ht ...	12.14 ft.	3.70 m.	50.99 ft.	15.54 m.
Horizon Distance	0.05 mi.	0.09 km.	12.40 mi.	19.95 km.
Horizon Elevation Amsl .	138.88 ft.	42.33 m.	150.24 ft.	45.79 m.
Ray Crossover Angle	61.70 mr.			
Terrain Delta Ht	21.59 ft.	6.58 m.		
Effective Distance	44.53 mi.	71.65 km.		
Pathlength	12.56 mi.	20.21 km.		
Azimuth	154.81 deg.		334.88 deg.	
Frequency	13750 MHz			
K Factor	1.33 (K)			

Radio Climate Phrase ... Maritime Temperate Climate Over Land
Type of Path ..... Rounded Single Object
Free Space Path Loss ... 141.3 dB Atmospheric Loss ... 0.479 dB
Diff. Loss .... 48.4 dB (189.7 dB) Tropo. Loss ... 96.3 dB (237.6 dB)
Terrain data type ..... 1.0 ARC Second

Losses	L-Fspl	Sigma	Controlling	Propagation Mode
184.4 dB	43.1 dB	3.6 dB	20. %	Diffraction
181.9 dB	40.6 dB	3.6 dB	1. %	Diffraction
181.2 dB	39.9 dB	3.7 dB	0.1 %	Diffraction
180.8 dB	39.5 dB	3.7 dB	0.01 %	Diffraction
180.2 dB	39.0 dB	3.7 dB	0.0025%	Diffraction

The OH loss calculations considered a terrain profile of 698 points.
The list below shows the highest point in each fiftieth of the path length.

Dist. (km.)	Elev. (m.)	Obstr. (m.)	K=Inf. Clrnce. (m.)	K= 1.33 Clrnce. (m.)	Dist. (km.)	Elev. (m.)	Obstr. (m.)	K=Inf. Clrnce. (m.)	K= 1.33 Clrnce. (m.)
0.00	33.5	3.7	0.0	0.0	10.12	5.4	0.0	20.9	14.9
0.09	36.2	5.8	-4.9	-5.0	10.53	4.7	0.0	21.3	15.2
0.26	39.7	6.1	-8.9	-9.2	11.05	4.6	0.0	20.8	14.8
0.58	38.7	0.0	-2.1	-2.8	11.34	4.6	0.0	20.5	14.6
1.19	38.6	0.0	-2.7	-4.0	11.95	3.3	0.0	21.0	15.2
1.22	38.0	0.0	-2.1	-3.5	12.15	3.0	0.0	21.1	15.4
1.65	34.6	0.0	0.8	-1.0	12.58	2.4	0.0	21.3	15.6
2.03	33.1	0.0	1.9	-0.3	12.96	1.8	0.0	21.5	16.0
2.78	33.9	0.0	0.3	-2.5	13.37	1.5	0.0	21.4	16.0
2.84	33.9	0.0	0.3	-2.6	13.74	1.5	0.0	21.0	15.7
3.25	28.4	0.0	5.3	2.0	14.15	1.2	0.0	20.8	15.8
3.65	26.9	0.0	6.4	2.8	14.56	0.0	0.0	21.6	16.7
4.06	23.8	0.0	9.0	5.2	14.96	0.0	0.0	21.2	16.5
4.58	23.0	0.0	9.3	5.0	15.37	0.0	0.0	20.7	16.3
4.87	19.8	0.0	12.2	7.8	15.77	0.0	0.0	20.3	16.2
5.28	19.0	0.0	12.5	7.9	16.18	0.0	0.0	19.9	16.0
5.68	17.7	0.0	13.4	8.5	16.59	0.0	0.0	19.4	15.9
6.09	16.3	0.0	14.4	9.3	16.99	0.0	0.0	19.0	15.8
6.61	14.7	0.0	15.5	10.2	17.40	0.0	0.0	18.6	15.7
7.22	10.8	0.0	18.7	13.1	17.80	0.0	0.0	18.1	15.6
7.28	9.9	0.0	19.5	13.9	18.21	0.0	0.0	17.7	15.5
8.06	8.6	0.0	20.0	14.2	18.62	0.0	0.0	17.2	15.5

8.09	8.6	0.0	20.0	14.2	19.02	0.0	0.0	16.8	15.5
8.87	8.9	0.0	18.8	12.9	19.43	0.0	0.0	16.4	15.5
8.90	8.9	0.0	18.7	12.8	20.18	1.4	0.0	14.2	14.1
9.48	7.6	0.0	19.4	13.4	20.21	0.0	15.5	0.0	0.0
9.83	7.6	0.0	19.0	13.0					

Pathloss Calculation

Path data for case # 1	HAUPPAUGE		COAST 160	
Latitude	40 48 54.1		40 38 43.4	
Longitude	73 14 17.8		73 9 16.6	
Antenna Center Agl	12.14 ft.	3.70 m.	50.99 ft.	15.54 m.
Site Elevation Amsl	109.91 ft.	33.50 m.	0.00 ft.	0.00 m.
Antenna Center Amsl	122.05 ft.	37.20 m.	50.99 ft.	15.54 m.
Effective Antenna Ht ...	12.14 ft.	3.70 m.	50.99 ft.	15.54 m.
Horizon Distance	0.06 mi.	0.09 km.	12.19 mi.	19.62 km.
Horizon Elevation Amsl .	139.05 ft.	42.38 m.	150.60 ft.	45.90 m.
Ray Crossover Angle	61.20 mr.			
Terrain Delta Ht	23.72 ft.	7.23 m.		
Effective Distance	44.33 mi.	71.33 km.		
Pathlength	12.50 mi.	20.12 km.		
Azimuth	159.41 deg.		339.46 deg.	
Frequency	13750 MHz			
K Factor	1.33 (K)			

Radio Climate Phrase ... Maritime Temperate Climate Over Land
Type of Path ..... Rounded Single Object
Free Space Path Loss ... 141.2 dB Atmospheric Loss ... 0.477 dB
Diff. Loss .... 56.2 dB (197.4 dB) Tropo. Loss ... 96.3 dB (237.5 dB)
Terrain data type ..... 1.0 ARC Second

Losses	L-Fspl	Sigma	Controlling Propagation Mode	
192.1 dB	50.9 dB	3.6 dB	20. %	Diffraction
189.6 dB	48.4 dB	3.6 dB	1. %	Diffraction
189.0 dB	47.7 dB	3.7 dB	0.1 %	Diffraction
188.5 dB	47.3 dB	3.7 dB	0.01 %	Diffraction
188.0 dB	46.7 dB	3.7 dB	0.0025%	Diffraction

The OH loss calculations considered a terrain profile of 682 points.
The list below shows the highest point in each fiftieth of the path length.

Dist. (km.)	Elev. (m.)	Obstr. (m.)	K=Inf. Clrnce. (m.)	K= 1.33 Clrnce. (m.)	Dist. (km.)	Elev. (m.)	Obstr. (m.)	K=Inf. Clrnce. (m.)	K= 1.33 Clrnce. (m.)
0.00	33.5	3.7	0.0	0.0	10.08	4.9	0.0	21.5	15.5
0.09	36.3	5.7	-4.9	-5.0	10.70	4.3	0.0	21.4	15.5
0.24	40.4	6.1	-9.5	-9.8	10.87	3.1	0.0	22.4	16.5
0.68	40.7	0.0	-4.2	-5.0	11.29	3.0	0.0	22.0	16.1
1.12	37.9	0.0	-1.9	-3.2	11.67	1.9	0.0	22.7	16.9
1.36	37.0	0.0	-1.3	-2.8	12.08	1.5	0.0	22.7	16.9
1.65	34.5	0.0	0.9	-0.9	12.73	0.9	0.0	22.6	17.0
2.04	32.4	0.0	2.6	0.5	12.88	0.9	0.0	22.4	16.9
2.75	33.6	0.0	0.7	-2.1	13.30	0.0	0.0	22.9	17.5
2.84	31.7	0.0	2.5	-0.4	13.71	0.0	0.0	22.4	17.3
3.34	28.4	0.0	5.2	1.9	14.09	0.0	0.0	22.0	17.0
3.63	25.2	0.0	8.1	4.5	14.51	0.0	0.0	21.6	16.8
4.17	25.9	0.0	6.9	2.9	14.89	0.0	0.0	21.2	16.6
4.43	24.0	0.0	8.4	4.3	15.31	0.0	0.0	20.7	16.4
4.85	20.5	0.0	11.5	7.1	15.72	0.0	0.0	20.3	16.2
5.29	19.5	0.0	12.0	7.4	16.10	0.0	0.0	19.9	16.0
5.85	15.7	0.0	15.2	10.3	16.52	0.0	0.0	19.4	15.9
6.12	14.9	0.0	15.7	10.7	16.93	0.0	0.0	19.0	15.8
6.65	12.0	0.0	18.0	12.8	17.31	0.0	0.0	18.6	15.7
6.97	14.5	0.0	15.2	9.8	17.73	0.0	0.0	18.1	15.6
7.27	10.0	0.0	19.3	13.8	18.11	0.0	0.0	17.7	15.6
7.74	8.8	0.0	20.0	14.4	18.53	0.0	0.0	17.3	15.5

8.27	9.2	0.0	19.1	13.3	18.94	0.0	0.0	16.8	15.5
8.48	8.0	0.0	20.1	14.2	19.71	0.9	0.0	15.0	14.6
9.22	5.9	0.0	21.3	15.4	20.09	1.8	0.0	13.8	13.8
9.57	6.1	0.0	20.8	14.9	20.12	0.0	15.5	0.0	0.0
9.66	5.7	0.0	21.1	15.2					

Pathloss Calculation

Path data for case # 1	HAUPPAUGE		COAST 165	
Latitude	40 48 54.1		40 38 26.4	
Longitude	73 14 17.8		73 10 45.6	
Antenna Center Agl	12.14 ft.	3.70 m.	50.99 ft.	15.54 m.
Site Elevation Amsl	109.91 ft.	33.50 m.	0.00 ft.	0.00 m.
Antenna Center Amsl	122.05 ft.	37.20 m.	50.99 ft.	15.54 m.
Effective Antenna Ht ...	12.14 ft.	3.70 m.	50.99 ft.	15.54 m.
Horizon Distance	0.06 mi.	0.09 km.	12.11 mi.	19.48 km.
Horizon Elevation Amsl .	139.48 ft.	42.51 m.	162.05 ft.	49.39 m.
Ray Crossover Angle	61.61 mr.			
Terrain Delta Ht	17.74 ft.	5.41 m.		
Effective Distance	44.05 mi.	70.87 km.		
Pathlength	12.43 mi.	19.99 km.		
Azimuth	165.56 deg.		345.60 deg.	
Frequency	13750 MHz			
K Factor	1.33 (K)			

Radio Climate Phrase ... Maritime Temperate Climate Over Land
Type of Path ..... Rounded Single Object
Free Space Path Loss ... 141.2 dB Atmospheric Loss ... 0.474 dB
Diff. Loss .... 56.6 dB (197.8 dB) Tropo. Loss ... 96.4 dB (237.5 dB)
Terrain data type ..... 1.0 ARC Second

Losses	L-Fspl	Sigma	Controlling Propagation Mode	
192.5 dB	51.3 dB	3.6 dB	20. %	Diffraction
190.0 dB	48.9 dB	3.6 dB	1. %	Diffraction
189.4 dB	48.2 dB	3.7 dB	0.1 %	Diffraction
188.9 dB	47.7 dB	3.7 dB	0.01 %	Diffraction
188.4 dB	47.2 dB	3.7 dB	0.0025%	Diffraction

The OH loss calculations considered a terrain profile of 664 points.
The list below shows the highest point in each fiftieth of the path length.

Dist. (km.)	Elev. (m.)	Obstr. (m.)	K=Inf. Clrnce. (m.)	K= 1.33 Clrnce. (m.)	Dist. (km.)	Elev. (m.)	Obstr. (m.)	K=Inf. Clrnce. (m.)	K= 1.33 Clrnce. (m.)
0.00	33.5	3.7	0.0	0.0	10.17	4.0	0.0	22.2	16.3
0.09	36.4	6.6	-5.9	-6.0	10.41	3.7	0.0	22.3	16.4
0.39	41.5	6.1	-10.8	-11.3	10.80	3.0	0.0	22.4	16.6
0.51	43.3	6.1	-12.7	-13.3	11.22	1.8	0.0	23.2	17.4
0.81	41.6	0.0	-5.3	-6.2	11.89	0.8	0.0	23.5	17.8
1.36	36.7	0.0	-1.0	-2.5	12.01	0.1	0.0	24.1	18.5
1.63	34.4	0.0	1.1	-0.7	12.40	0.0	0.0	23.8	18.2
2.26	33.0	0.0	1.7	-0.6	12.82	0.0	0.0	23.3	17.9
2.41	29.0	0.0	5.5	3.0	13.22	0.0	0.0	22.9	17.6
3.02	28.3	0.0	5.6	2.6	13.61	0.0	0.0	22.5	17.3
3.23	28.4	0.0	5.3	2.1	14.00	0.0	0.0	22.0	17.1
3.62	26.3	0.0	7.0	3.5	14.42	0.0	0.0	21.6	16.8
4.04	25.7	0.0	7.1	3.3	14.81	0.0	0.0	21.1	16.6
4.40	22.0	0.0	10.4	6.4	15.21	0.0	0.0	20.7	16.4
4.83	15.8	0.0	16.2	11.9	15.60	0.0	0.0	20.3	16.3
5.37	15.0	0.0	16.4	11.8	16.02	0.0	0.0	19.8	16.1
5.91	13.9	0.0	16.9	12.0	16.41	0.0	0.0	19.4	16.0
6.00	12.4	0.0	18.3	13.4	16.81	0.0	0.0	19.0	15.8
6.73	11.0	0.0	18.9	13.6	17.20	0.0	0.0	18.6	15.7
7.03	10.8	0.0	18.8	13.4	17.98	0.9	0.0	16.8	14.7
7.27	10.5	0.0	18.8	13.4	18.01	0.9	0.0	16.8	14.7
7.60	9.7	0.0	19.3	13.7	18.41	0.9	0.0	16.3	14.6

8.24	7.3	0.0	21.0	15.3	18.80	0.0	0.0	16.8	15.5
8.72	6.7	0.0	21.0	15.2	19.22	0.0	0.0	16.4	15.5
8.81	6.4	0.0	21.2	15.4	19.97	1.3	0.0	14.3	14.3
9.20	5.5	0.0	21.7	15.8	19.99	0.0	15.5	0.0	0.0
9.62	4.9	0.0	21.9	16.0					

Pathloss Calculation

Path data for case # 1	HAUPPAUGE		COAST 170	
Latitude	40 48 54.1		40 38 15.2	
Longitude	73 14 17.8		73 11 54.3	
Antenna Center Agl	12.14 ft.	3.70 m.	50.99 ft.	15.54 m.
Site Elevation Amsl	109.91 ft.	33.50 m.	0.00 ft.	0.00 m.
Antenna Center Amsl	122.05 ft.	37.20 m.	50.99 ft.	15.54 m.
Effective Antenna Ht ...	12.14 ft.	3.70 m.	50.99 ft.	15.54 m.
Horizon Distance	0.06 mi.	0.09 km.	12.10 mi.	19.47 km.
Horizon Elevation Amsl .	139.77 ft.	42.60 m.	167.59 ft.	51.08 m.
Ray Crossover Angle	61.98 mr.			
Terrain Delta Ht	22.38 ft.	6.82 m.		
Effective Distance	44.05 mi.	70.88 km.		
Pathlength	12.43 mi.	19.99 km.		
Azimuth	170.29 deg.		350.32 deg.	
Frequency	13750 MHz			
K Factor	1.33 (K)			

Radio Climate Phrase ... Maritime Temperate Climate Over Land
Type of Path ..... Rounded Single Object
Free Space Path Loss ... 141.2 dB Atmospheric Loss ... 0.474 dB
Diff. Loss .... 56.9 dB (198.1 dB) Tropo. Loss ... 96.4 dB (237.6 dB)
Terrain data type ..... 1.0 ARC Second

Losses	L-Fspl	Sigma	Controlling	Propagation Mode
192.8 dB	51.7 dB	3.6 dB	20. %	Diffraction
190.4 dB	49.2 dB	3.6 dB	1. %	Diffraction
189.7 dB	48.5 dB	3.7 dB	0.1 %	Diffraction
189.2 dB	48.1 dB	3.7 dB	0.01 %	Diffraction
188.7 dB	47.6 dB	3.7 dB	0.0025%	Diffraction

The OH loss calculations considered a terrain profile of 656 points.
The list below shows the highest point in each fiftieth of the path length.

Dist. (km.)	Elev. (m.)	Obstr. (m.)	K=Inf. Clrnce. (m.)	K= 1.33 Clrnce. (m.)	Dist. (km.)	Elev. (m.)	Obstr. (m.)	K=Inf. Clrnce. (m.)	K= 1.33 Clrnce. (m.)
0.00	33.5	3.7	0.0	0.0	10.01	3.0	0.0	23.3	17.4
0.09	36.5	6.5	-5.9	-6.0	10.41	3.0	0.0	22.9	17.0
0.40	43.9	6.1	-13.2	-13.7	11.08	1.5	0.0	23.7	17.8
0.52	45.0	6.1	-14.4	-15.0	11.21	1.5	0.0	23.5	17.7
0.82	41.5	0.0	-5.2	-6.1	11.72	1.5	0.0	23.0	17.3
1.34	35.6	0.0	0.2	-1.3	12.00	1.5	0.0	22.7	17.0
1.62	34.0	0.0	1.4	-0.3	12.40	0.0	0.0	23.8	18.2
2.29	35.0	0.0	-0.3	-2.6	12.82	0.0	0.0	23.3	17.9
2.41	33.5	0.0	1.1	-1.4	13.22	0.0	0.0	22.9	17.6
2.93	31.5	0.0	2.5	-0.4	13.62	0.0	0.0	22.4	17.3
3.21	27.2	0.0	6.5	3.3	14.01	0.0	0.0	22.0	17.1
3.72	23.2	0.0	10.0	6.4	14.41	0.0	0.0	21.6	16.8
4.21	21.0	0.0	11.7	7.8	14.81	0.0	0.0	21.2	16.6
4.73	23.3	0.0	8.8	4.5	15.21	0.0	0.0	20.7	16.4
4.82	20.2	0.0	11.8	7.5	15.60	0.0	0.0	20.3	16.3
5.31	17.6	0.0	13.9	9.3	16.00	0.0	0.0	19.9	16.1
5.83	15.8	0.0	15.1	10.2	16.40	0.0	0.0	19.4	16.0
6.35	14.6	0.0	15.7	10.6	16.82	0.0	0.0	19.0	15.8
6.41	12.6	0.0	17.6	12.5	17.59	0.9	0.0	17.2	14.8
6.87	10.0	0.0	19.8	14.5	17.86	1.5	0.0	16.4	14.1
7.36	10.0	0.0	19.2	13.7	18.01	0.0	0.0	17.7	15.6
7.60	9.1	0.0	19.8	14.3	18.41	0.0	0.0	17.3	15.5

8.03	7.8	0.0	20.7	15.0	18.81	0.0	0.0	16.8	15.5
8.43	6.6	0.0	21.5	15.7	19.21	0.0	0.0	16.4	15.5
8.82	5.6	0.0	22.0	16.2	19.85	1.2	0.0	14.5	14.3
9.22	3.7	0.0	23.5	17.7	19.99	0.0	15.5	0.0	0.0
9.89	3.3	0.0	23.1	17.2					

Pathloss Calculation

Path data for case # 1	HAUPPAUGE		COAST 175	
Latitude	40 48 54.1		40 37 39.7	
Longitude	73 14 17.8		73 13 15.7	
Antenna Center Agl	12.14 ft.	3.70 m.	50.99 ft.	15.54 m.
Site Elevation Amsl	109.91 ft.	33.50 m.	0.00 ft.	0.00 m.
Antenna Center Amsl	122.05 ft.	37.20 m.	50.99 ft.	15.54 m.
Effective Antenna Ht ...	12.14 ft.	3.70 m.	50.99 ft.	15.54 m.
Horizon Distance	0.06 mi.	0.09 km.	12.65 mi.	20.36 km.
Horizon Elevation Amsl .	140.03 ft.	42.68 m.	175.57 ft.	53.51 m.
Ray Crossover Angle	62.44 mr.			
Terrain Delta Ht	23.34 ft.	7.11 m.		
Effective Distance	45.95 mi.	73.93 km.		
Pathlength	12.96 mi.	20.85 km.		
Azimuth	175.99 deg.		356.00 deg.	
Frequency	13750 MHz			
K Factor	1.33 (K)			

Radio Climate Phrase ... Maritime Temperate Climate Over Land
Type of Path ..... Rounded Single Object
Free Space Path Loss ... 141.5 dB Atmospheric Loss ... 0.494 dB
Diff. Loss .... 56.5 dB (198.1 dB) Tropo. Loss ... 96.4 dB (237.9 dB)
Terrain data type ..... 1.0 ARC Second

Losses	L-Fspl	Sigma	Controlling	Propagation Mode
192.8 dB	51.3 dB	3.6 dB	20. %	Diffraction
190.2 dB	48.7 dB	3.6 dB	1. %	Diffraction
189.5 dB	48.0 dB	3.7 dB	0.1 %	Diffraction
189.0 dB	47.5 dB	3.7 dB	0.01 %	Diffraction
188.5 dB	47.0 dB	3.8 dB	0.0025%	Diffraction

The OH loss calculations considered a terrain profile of 679 points.
The list below shows the highest point in each fiftieth of the path length.

Dist. (km.)	Elev. (m.)	Obstr. (m.)	K=Inf. Clrnce. (m.)	K= 1.33 Clrnce. (m.)	Dist. (km.)	Elev. (m.)	Obstr. (m.)	K=Inf. Clrnce. (m.)	K= 1.33 Clrnce. (m.)
0.00	33.5	3.7	0.0	0.0	10.44	2.0	0.0	24.4	18.0
0.09	36.6	6.4	-5.9	-6.0	10.87	1.2	0.0	24.7	18.3
0.40	46.2	6.1	-15.5	-16.0	11.27	0.0	0.0	25.5	19.1
0.49	47.4	6.1	-16.8	-17.4	11.70	0.0	0.0	25.0	18.7
0.86	40.8	0.0	-4.5	-5.5	12.10	0.0	0.0	24.6	18.4
1.32	38.6	0.0	-2.7	-4.3	12.53	0.0	0.0	24.2	18.0
1.69	35.0	0.0	0.4	-1.5	12.93	0.0	0.0	23.8	17.7
2.09	35.0	0.0	0.0	-2.3	13.36	0.0	0.0	23.3	17.4
2.52	31.7	0.0	2.9	0.2	13.76	0.0	0.0	22.9	17.1
2.93	30.0	0.0	4.1	1.0	14.19	0.0	0.0	22.5	16.9
3.39	26.0	0.0	7.7	4.2	14.63	0.0	0.0	22.0	16.6
3.91	25.5	0.0	7.7	3.8	15.03	0.0	0.0	21.6	16.4
4.19	19.2	0.0	13.7	9.6	15.46	0.0	0.0	21.1	16.2
4.99	17.2	0.0	14.8	10.1	15.86	0.0	0.0	20.7	16.1
5.11	18.1	0.0	13.8	9.0	16.29	0.0	0.0	20.3	15.9
5.48	17.6	0.0	13.9	8.9	16.69	0.0	0.0	19.9	15.8
6.00	14.1	0.0	16.8	11.6	17.12	0.0	0.0	19.4	15.6
6.28	12.8	0.0	17.9	12.5	17.52	0.0	0.0	19.0	15.6
7.05	10.5	0.0	19.4	13.6	17.95	0.0	0.0	18.6	15.5
7.33	11.1	0.0	18.5	12.7	18.35	0.0	0.0	18.1	15.4
7.51	9.9	0.0	19.5	13.6	18.78	0.0	0.0	17.7	15.4
7.94	8.5	0.0	20.4	14.4	19.21	0.0	0.0	17.2	15.4

8.34	7.2	0.0	21.3	15.2	19.61	0.0	0.0	16.8	15.4
8.78	5.5	0.0	22.6	16.4	20.41	1.5	0.0	14.5	14.0
9.18	3.6	0.0	24.1	17.8	20.72	4.0	0.0	11.7	11.5
9.61	2.5	0.0	24.7	18.4	20.85	0.0	15.5	0.0	0.0
10.35	2.2	0.0	24.2	17.8					

Pathloss Calculation

Path data for case # 1	HAUPPAUGE		COAST 180	
Latitude	40 48 54.1		40 37 40.7	
Longitude	73 14 17.8		73 14 24.1	
Antenna Center Agl	12.14 ft.	3.70 m.	50.99 ft.	15.54 m.
Site Elevation Amsl	109.91 ft.	33.50 m.	0.00 ft.	0.00 m.
Antenna Center Amsl	122.05 ft.	37.20 m.	50.99 ft.	15.54 m.
Effective Antenna Ht ...	12.14 ft.	3.70 m.	50.99 ft.	15.54 m.
Horizon Distance	0.06 mi.	0.09 km.	12.60 mi.	20.28 km.
Horizon Elevation Amsl .	140.20 ft.	42.73 m.	183.83 ft.	56.03 m.
Ray Crossover Angle	63.00 mr.			
Terrain Delta Ht	22.86 ft.	6.97 m.		
Effective Distance	45.77 mi.	73.64 km.		
Pathlength	12.91 mi.	20.77 km.		
Azimuth	180.41 deg.		0.41 deg.	
Frequency	13750 MHz			
K Factor	1.33 (K)			

Radio Climate Phrase ... Maritime Temperate Climate Over Land
Type of Path ..... Rounded Single Object
Free Space Path Loss ... 141.5 dB Atmospheric Loss ... 0.492 dB
Diff. Loss .... 56.8 dB (198.3 dB) Tropo. Loss ... 96.5 dB (238.0 dB)
Terrain data type ..... 1.0 ARC Second

Losses	L-Fspl	Sigma	Controlling Propagation Mode
193.1 dB	51.6 dB	3.6 dB	20. % Diffraction
190.5 dB	49.0 dB	3.6 dB	1. % Diffraction
189.8 dB	48.3 dB	3.7 dB	0.1 % Diffraction
189.3 dB	47.8 dB	3.7 dB	0.01 % Diffraction
188.8 dB	47.3 dB	3.8 dB	0.0025% Diffraction

The OH loss calculations considered a terrain profile of 675 points.
The list below shows the highest point in each fiftieth of the path length.

Dist. (km.)	Elev. (m.)	Obstr. (m.)	K=Inf. Clrnce. (m.)	K= 1.33 Clrnce. (m.)	Dist. (km.)	Elev. (m.)	Obstr. (m.)	K=Inf. Clrnce. (m.)	K= 1.33 Clrnce. (m.)
0.00	33.5	3.7	0.0	0.0	10.58	1.1	0.0	25.0	18.7
0.09	36.6	6.4	-5.9	-6.0	10.98	0.3	0.0	25.4	19.1
0.40	47.7	6.1	-17.0	-17.5	11.54	0.9	0.0	24.3	18.0
0.49	49.9	6.1	-19.3	-19.9	11.66	0.0	0.0	25.0	18.8
0.83	41.7	0.0	-5.4	-6.4	12.06	0.0	0.0	24.6	18.4
1.33	38.3	0.0	-2.5	-4.0	12.49	0.0	0.0	24.2	18.1
1.67	34.6	0.0	0.9	-1.0	12.89	0.0	0.0	23.8	17.8
2.31	32.3	0.0	2.4	-0.1	13.29	0.0	0.0	23.3	17.5
2.50	28.5	0.0	6.1	3.4	13.73	0.0	0.0	22.9	17.2
2.99	28.4	0.0	5.7	2.6	14.13	0.0	0.0	22.5	16.9
3.33	26.0	0.0	7.7	4.3	14.56	0.0	0.0	22.0	16.7
3.76	21.7	0.0	11.6	7.8	14.96	0.0	0.0	21.6	16.5
4.20	21.6	0.0	11.2	7.1	15.39	0.0	0.0	21.2	16.3
4.84	21.7	0.0	10.5	5.9	15.79	0.0	0.0	20.7	16.1
5.34	20.0	0.0	11.6	6.8	16.22	0.0	0.0	20.3	15.9
5.43	19.0	0.0	12.6	7.7	16.63	0.0	0.0	19.9	15.8
5.98	15.6	0.0	15.4	10.2	17.40	2.9	0.0	16.2	12.7
6.48	15.0	0.0	15.4	10.0	17.46	2.2	0.0	16.8	13.4
6.79	14.4	0.0	15.7	10.1	17.89	0.0	0.0	18.5	15.5
7.25	12.0	0.0	17.6	11.8	18.29	0.0	0.0	18.1	15.5
7.65	12.4	0.0	16.9	11.0	18.72	0.0	0.0	17.7	15.4
7.90	11.9	0.0	17.1	11.1	19.12	0.0	0.0	17.3	15.4

8.51	9.5	0.0	18.9	12.7	19.56	0.0	0.0	16.8	15.4
8.73	8.5	0.0	19.6	13.4	19.96	0.0	0.0	16.4	15.4
9.16	6.5	0.0	21.2	14.9	20.76	1.3	0.0	14.2	14.2
9.56	4.8	0.0	22.4	16.1	20.77	0.0	15.5	0.0	0.0
9.99	3.3	0.0	23.4	17.1					

Pathloss Calculation

Path data for case # 1	HAUPPAUGE		COAST 185	
Latitude	40 48 54.1		40 37 32.9	
Longitude	73 14 17.8		73 15 52.8	
Antenna Center Agl	12.14 ft.	3.70 m.	50.99 ft.	15.54 m.
Site Elevation Amsl	109.91 ft.	33.50 m.	0.00 ft.	0.00 m.
Antenna Center Amsl	122.05 ft.	37.20 m.	50.99 ft.	15.54 m.
Effective Antenna Ht ...	12.14 ft.	3.70 m.	50.99 ft.	15.54 m.
Horizon Distance	0.06 mi.	0.09 km.	12.83 mi.	20.64 km.
Horizon Elevation Amsl .	140.23 ft.	42.74 m.	186.59 ft.	56.87 m.
Ray Crossover Angle	63.38 mr.			
Terrain Delta Ht	21.77 ft.	6.63 m.		
Effective Distance	46.56 mi.	74.91 km.		
Pathlength	13.13 mi.	21.13 km.		
Azimuth	186.07 deg.		6.05 deg.	
Frequency	13750 MHz			
K Factor	1.33 (K)			

Radio Climate Phrase ... Maritime Temperate Climate Over Land
Type of Path ..... Rounded Single Object
Free Space Path Loss ... 141.7 dB Atmospheric Loss ... 0.501 dB
Diff. Loss .... 57.0 dB (198.6 dB) Tropo. Loss ... 96.6 dB (238.2 dB)
Terrain data type ..... 1.0 ARC Second

Losses	L-Fspl	Sigma	Controlling	Propagation Mode
193.4 dB	51.7 dB	3.6 dB	20. %	Diffraction
190.8 dB	49.1 dB	3.6 dB	1. %	Diffraction
190.1 dB	48.4 dB	3.7 dB	0.1 %	Diffraction
189.6 dB	47.9 dB	3.7 dB	0.01 %	Diffraction
189.0 dB	47.4 dB	3.8 dB	0.0025%	Diffraction

The OH loss calculations considered a terrain profile of 689 points.
The list below shows the highest point in each fiftieth of the path length.

Dist. (km.)	Elev. (m.)	Obstr. (m.)	K=Inf. Clrnce. (m.)	K= 1.33 Clrnce. (m.)	Dist. (km.)	Elev. (m.)	Obstr. (m.)	K=Inf. Clrnce. (m.)	K= 1.33 Clrnce. (m.)
0.00	33.5	3.7	0.0	0.0	10.60	4.9	0.0	21.5	14.9
0.09	36.6	6.4	-5.9	-6.0	11.00	3.3	0.0	22.6	16.1
0.40	49.0	6.1	-18.4	-18.8	11.58	2.3	0.0	23.0	16.5
0.49	50.8	6.1	-20.2	-20.8	11.86	1.8	0.0	23.2	16.7
0.86	42.0	0.0	-5.7	-6.7	12.26	1.8	0.0	22.8	16.4
1.29	37.7	0.0	-1.8	-3.3	12.69	0.8	0.0	23.4	17.1
1.97	34.7	0.0	0.5	-1.7	13.12	0.0	0.0	23.8	17.6
2.46	33.3	0.0	1.4	-1.3	13.55	0.0	0.0	23.3	17.3
2.89	34.7	0.0	-0.5	-3.6	13.95	0.0	0.0	22.9	17.0
2.98	32.8	0.0	1.4	-1.8	14.38	0.0	0.0	22.5	16.7
3.41	29.2	0.0	4.5	1.0	14.81	0.0	0.0	22.0	16.5
4.21	25.7	0.0	7.2	3.0	15.24	0.0	0.0	21.6	16.3
4.45	24.8	0.0	7.9	3.5	15.64	0.0	0.0	21.2	16.1
4.95	22.0	0.0	10.1	5.4	16.07	0.0	0.0	20.7	15.9
5.22	22.1	0.0	9.7	4.8	16.50	0.0	0.0	20.3	15.8
5.50	18.2	0.0	13.4	8.3	16.93	0.0	0.0	19.8	15.7
5.93	16.6	0.0	14.6	9.2	17.73	0.0	0.0	19.0	15.4
6.70	14.9	0.0	15.4	9.7	18.16	1.2	0.0	17.4	14.2
6.79	14.0	0.0	16.2	10.5	18.19	1.2	0.0	17.3	14.2
7.25	13.7	0.0	16.0	10.1	18.99	2.8	0.0	14.9	12.5
7.93	11.4	0.0	17.6	11.5	19.42	4.8	0.0	12.5	10.6
8.45	11.7	0.0	16.8	10.5	19.75	10.8	0.0	6.1	4.5

8.48	11.6	0.0	16.9	10.6	19.88	10.6	0.0	6.2	4.7
8.88	7.7	0.0	20.4	14.0	20.31	0.0	0.0	16.4	15.4
9.37	7.6	0.0	20.0	13.5	20.74	0.0	0.0	15.9	15.5
9.74	7.6	0.0	19.6	13.1	21.13	0.0	15.5	0.0	0.0
10.54	4.8	0.0	21.6	15.0					

Pathloss Calculation

Path data for case # 1	HAUPPAUGE		COAST 190	
Latitude	40 48 54.1		40 37 21.8	
Longitude	73 14 17.8		73 17 13.6	
Antenna Center Agl	12.14 ft.	3.70 m.	50.99 ft.	15.54 m.
Site Elevation Amsl	109.91 ft.	33.50 m.	0.00 ft.	0.00 m.
Antenna Center Amsl	122.05 ft.	37.20 m.	50.99 ft.	15.54 m.
Effective Antenna Ht ...	12.14 ft.	3.70 m.	50.99 ft.	15.54 m.
Horizon Distance	0.06 mi.	0.09 km.	13.21 mi.	21.26 km.
Horizon Elevation Amsl .	140.43 ft.	42.80 m.	183.15 ft.	55.82 m.
Ray Crossover Angle	64.50 mr.			
Terrain Delta Ht	20.48 ft.	6.24 m.		
Effective Distance	47.92 mi.	77.10 km.		
Pathlength	13.52 mi.	21.75 km.		
Azimuth	190.95 deg.		10.92 deg.	
Frequency	13750 MHz			
K Factor	1.33 (K)			

Radio Climate Phrase ... Maritime Temperate Climate Over Land
Type of Path ..... Rounded Single Object
Free Space Path Loss ... 141.9 dB Atmospheric Loss ... 0.516 dB
Diff. Loss .... 57.4 dB (199.4 dB) Tropo. Loss ... 96.7 dB (238.6 dB)
Terrain data type ..... 1.0 ARC Second

Losses	L-Fspl	Sigma	Controlling	Propagation Mode
194.1 dB	52.2 dB	3.6 dB	20. %	Diffraction
191.4 dB	49.5 dB	3.6 dB	1. %	Diffraction
190.7 dB	48.8 dB	3.7 dB	0.1 %	Diffraction
190.2 dB	48.3 dB	3.7 dB	0.01 %	Diffraction
189.6 dB	47.7 dB	3.8 dB	0.0025%	Diffraction

The OH loss calculations considered a terrain profile of 716 points.
The list below shows the highest point in each fiftieth of the path length.

Dist. (km.)	Elev. (m.)	Obstr. (m.)	K=Inf. Clrnce. (m.)	K= 1.33 Clrnce. (m.)	Dist. (km.)	Elev. (m.)	Obstr. (m.)	K=Inf. Clrnce. (m.)	K= 1.33 Clrnce. (m.)
0.00	33.5	3.7	0.0	0.0	10.90	6.0	0.0	20.4	13.4
0.09	36.7	6.3	-5.9	-6.0	11.54	4.6	0.0	21.1	14.2
0.43	49.2	6.1	-18.5	-19.1	11.75	4.4	0.0	21.1	14.2
0.49	49.7	6.1	-19.1	-19.7	12.21	3.0	0.0	22.0	15.1
0.88	42.0	0.0	-5.7	-6.8	12.64	2.9	0.0	21.7	14.9
1.49	37.0	0.0	-1.3	-3.1	13.25	1.5	0.0	22.5	15.9
2.01	36.3	0.0	-1.2	-3.5	13.61	1.2	0.0	22.4	15.9
2.53	35.0	0.0	-0.3	-3.2	13.95	0.0	0.0	23.3	16.9
2.62	33.4	0.0	1.2	-1.8	14.37	0.0	0.0	22.9	16.6
3.38	30.1	0.0	3.7	0.1	14.80	0.0	0.0	22.5	16.4
3.50	28.5	0.0	5.2	1.5	15.23	0.0	0.0	22.0	16.2
4.23	27.5	0.0	5.5	1.1	15.68	0.0	0.0	21.6	16.0
4.35	25.0	0.0	7.9	3.4	16.11	0.0	0.0	21.2	15.8
4.81	23.6	0.0	8.8	4.0	16.53	0.0	0.0	20.7	15.6
5.27	22.3	0.0	9.7	4.6	16.99	0.0	0.0	20.3	15.5
5.66	21.4	0.0	10.1	4.8	17.42	0.0	0.0	19.9	15.4
6.30	20.6	0.0	10.4	4.6	18.24	0.9	0.0	18.1	14.3
6.82	17.1	0.0	13.3	7.3	18.70	1.4	0.0	17.2	13.9
7.09	19.4	0.0	10.8	4.7	18.82	1.5	0.0	16.9	13.7
7.40	16.4	0.0	13.5	7.2	19.15	0.0	0.0	18.1	15.2
7.86	14.1	0.0	15.2	8.8	19.70	2.7	0.0	14.9	12.5
8.34	11.0	0.0	17.9	11.3	20.04	0.0	0.0	17.2	15.2

8.83	11.3	0.0	17.1	10.4	20.46	0.0	0.0	16.8	15.3
9.17	9.8	0.0	18.2	11.4	21.28	0.7	0.0	15.3	14.8
9.59	9.2	0.0	18.5	11.6	21.68	3.0	0.0	12.6	12.6
10.02	7.9	0.0	19.3	12.4	21.75	0.0	15.5	0.0	0.0
10.44	6.7	0.0	20.1	13.2					

Pathloss Calculation

Path data for case # 1	HAUPPAUGE		COAST 195	
Latitude	40 48 54.1		40 37 29.1	
Longitude	73 14 17.8		73 18 33.9	
Antenna Center Agl	12.14 ft.	3.70 m.	50.99 ft.	15.54 m.
Site Elevation Amsl	109.91 ft.	33.50 m.	0.00 ft.	0.00 m.
Antenna Center Amsl	122.05 ft.	37.20 m.	50.99 ft.	15.54 m.
Effective Antenna Ht ...	12.14 ft.	3.70 m.	50.99 ft.	15.54 m.
Horizon Distance	0.06 mi.	0.09 km.	13.39 mi.	21.55 km.
Horizon Elevation Amsl .	140.92 ft.	42.95 m.	183.18 ft.	55.83 m.
Ray Crossover Angle	67.00 mr.			
Terrain Delta Ht	16.67 ft.	5.08 m.		
Effective Distance	48.40 mi.	77.88 km.		
Pathlength	13.65 mi.	21.97 km.		
Azimuth	195.90 deg.		15.86 deg.	
Frequency	13750 MHz			
K Factor	1.33 (K)			

Radio Climate Phrase ... Maritime Temperate Climate Over Land
Type of Path ..... Rounded Single Object
Free Space Path Loss ... 142.0 dB Atmospheric Loss ... 0.521 dB
Diff. Loss .... 56.7 dB (198.7 dB) Tropo. Loss ... 97.2 dB (239.2 dB)
Terrain data type ..... 1.0 ARC Second

Losses	L-Fspl	Sigma	Controlling	Propagation Mode
193.5 dB	51.5 dB	3.6 dB	20. %	Diffraction
190.8 dB	48.8 dB	3.6 dB	1. %	Diffraction
190.0 dB	48.0 dB	3.7 dB	0.1 %	Diffraction
189.5 dB	47.5 dB	3.7 dB	0.01 %	Diffraction
188.9 dB	46.9 dB	3.8 dB	0.0025%	Diffraction

The OH loss calculations considered a terrain profile of 733 points.
The list below shows the highest point in each fiftieth of the path length.

Dist. (km.)	Elev. (m.)	Obstr. (m.)	K=Inf. Clrnce. (m.)	K= 1.33 Clrnce. (m.)	Dist. (km.)	Elev. (m.)	Obstr. (m.)	K=Inf. Clrnce. (m.)	K= 1.33 Clrnce. (m.)
0.00	33.5	3.7	0.0	0.0	11.20	8.2	0.0	17.9	10.8
0.09	36.8	6.2	-5.9	-6.0	11.44	7.5	0.0	18.4	11.3
0.42	49.7	6.1	-19.0	-19.6	11.87	6.1	0.0	19.5	12.4
0.45	49.6	6.1	-18.9	-19.5	12.68	4.6	0.0	20.1	13.2
0.90	42.0	0.0	-5.7	-6.8	12.77	4.1	0.0	20.5	13.6
1.56	37.0	0.0	-1.3	-3.2	13.19	2.7	0.0	21.5	14.7
1.77	35.9	0.0	-0.5	-2.6	14.06	2.7	0.0	20.7	14.1
2.40	35.5	0.0	-0.7	-3.5	14.21	3.0	0.0	20.1	13.6
2.64	33.0	0.0	1.6	-1.4	14.90	1.5	0.0	21.0	14.8
3.24	33.0	0.0	1.0	-2.6	14.96	1.4	0.0	21.1	14.9
3.90	27.5	0.0	5.9	1.7	15.38	0.0	0.0	22.0	16.1
3.96	27.0	0.0	6.3	2.1	15.83	0.0	0.0	21.6	15.9
4.57	25.6	0.0	7.1	2.4	16.28	0.0	0.0	21.1	15.7
4.84	24.6	0.0	7.8	2.9	16.70	0.0	0.0	20.7	15.5
5.38	23.8	0.0	8.1	2.8	17.15	0.0	0.0	20.3	15.4
5.77	20.6	0.0	10.9	5.4	17.60	0.0	0.0	19.8	15.3
6.43	20.8	0.0	10.1	4.2	18.02	0.0	0.0	19.4	15.2
6.64	20.0	0.0	10.6	4.6	18.68	1.1	0.0	17.6	14.0
7.06	18.5	0.0	11.7	5.5	18.89	0.0	0.0	18.6	15.1
7.69	17.8	0.0	11.8	5.4	19.74	0.9	0.0	16.8	14.2
8.26	15.2	0.0	13.8	7.1	20.19	2.0	0.0	15.3	13.2
8.35	14.9	0.0	14.1	7.4	20.25	2.6	0.0	14.6	12.6

8.80	13.8	0.0	14.7	7.9	20.67	0.0	0.0	16.8	15.2
9.25	11.9	0.0	16.1	9.2	21.12	0.0	0.0	16.4	15.3
9.67	11.2	0.0	16.5	9.5	21.93	0.2	0.0	15.3	15.3
10.12	9.8	0.0	17.4	10.4	21.97	0.0	15.5	0.0	0.0
10.72	8.0	0.0	18.6	11.5					

Pathloss Calculation

Path data for case # 1	HAUPPAUGE		COAST 200	
Latitude	40 48 54.1		40 38 15.9	
Longitude	73 14 17.8		73 19 25.0	
Antenna Center Agl	12.14 ft.	3.70 m.	50.99 ft.	15.54 m.
Site Elevation Amsl	109.91 ft.	33.50 m.	0.00 ft.	0.00 m.
Antenna Center Amsl	122.05 ft.	37.20 m.	50.99 ft.	15.54 m.
Effective Antenna Ht ...	12.14 ft.	3.70 m.	50.99 ft.	15.54 m.
Horizon Distance	0.06 mi.	0.09 km.	12.77 mi.	20.55 km.
Horizon Elevation Amsl .	141.28 ft.	43.06 m.	182.62 ft.	55.66 m.
Ray Crossover Angle	69.21 mr.			
Terrain Delta Ht	17.30 ft.	5.27 m.		
Effective Distance	46.19 mi.	74.32 km.		
Pathlength	13.03 mi.	20.96 km.		
Azimuth	200.14 deg.		20.09 deg.	
Frequency	13750 MHz			
K Factor	1.33 (K)			

Radio Climate Phrase ... Maritime Temperate Climate Over Land
Type of Path ..... Rounded Single Object
Free Space Path Loss ... 141.6 dB Atmospheric Loss ... 0.497 dB
Diff. Loss .... 57.5 dB (199.1 dB) Tropo. Loss ... 97.8 dB (239.4 dB)
Terrain data type ..... 1.0 ARC Second

Losses	L-Fspl	Sigma	Controlling	Propagation Mode
193.9 dB	52.3 dB	3.6 dB	20. %	Diffraction
191.3 dB	49.7 dB	3.6 dB	1. %	Diffraction
190.6 dB	49.0 dB	3.7 dB	0.1 %	Diffraction
190.1 dB	48.5 dB	3.7 dB	0.01 %	Diffraction
189.6 dB	48.0 dB	3.8 dB	0.0025%	Diffraction

The OH loss calculations considered a terrain profile of 710 points.
The list below shows the highest point in each fiftieth of the path length.

Dist. (km.)	Elev. (m.)	Obstr. (m.)	K=Inf. Clrnce. (m.)	K= 1.33 Clrnce. (m.)	Dist. (km.)	Elev. (m.)	Obstr. (m.)	K=Inf. Clrnce. (m.)	K= 1.33 Clrnce. (m.)
0.00	33.5	3.7	0.0	0.0	10.65	12.2	0.0	14.0	7.5
0.09	37.0	6.0	-5.9	-6.0	10.92	10.9	0.0	15.0	8.6
0.41	49.6	6.1	-18.9	-19.4	11.34	9.3	0.0	16.2	9.7
0.44	49.4	6.1	-18.7	-19.3	12.08	7.3	0.0	17.4	11.1
0.86	42.9	0.0	-6.6	-7.6	12.31	7.4	0.0	17.1	10.8
1.42	38.9	0.0	-3.2	-4.8	12.58	6.1	0.0	18.1	11.9
1.92	36.0	0.0	-0.8	-2.9	13.02	5.2	0.0	18.5	12.4
2.34	36.2	0.0	-1.4	-4.0	13.64	4.6	0.0	18.5	12.6
2.55	34.0	0.0	0.6	-2.2	13.85	4.3	0.0	18.6	12.8
3.17	28.8	0.0	5.1	1.8	14.27	3.1	0.0	19.4	13.8
3.76	28.5	0.0	4.8	1.0	14.74	1.5	0.0	20.5	15.1
3.88	30.0	0.0	3.2	-0.7	15.10	0.9	0.0	20.7	15.5
4.20	28.2	0.0	4.7	0.5	15.54	0.0	0.0	21.1	16.2
4.82	26.0	0.0	6.2	1.6	15.95	0.0	0.0	20.7	16.0
5.06	24.2	0.0	7.8	3.0	16.37	0.0	0.0	20.3	15.9
5.48	24.0	0.0	7.5	2.5	16.78	0.0	0.0	19.9	15.7
6.27	21.3	0.0	9.4	4.0	17.20	0.0	0.0	19.4	15.6
6.39	23.8	0.0	6.8	1.4	17.61	0.0	0.0	19.0	15.5
6.75	19.9	0.0	10.3	4.7	18.06	0.0	0.0	18.5	15.4
7.37	18.0	0.0	11.6	5.7	18.47	0.0	0.0	18.1	15.4
7.70	18.3	0.0	10.9	4.9	18.88	0.0	0.0	17.7	15.4
7.99	16.8	0.0	12.2	6.1	19.30	0.0	0.0	17.3	15.4

8.41	16.3	0.0	12.2	6.0	20.10	0.9	0.0	15.5	14.5
8.82	15.7	0.0	12.4	6.1	20.54	1.8	0.0	14.2	13.7
9.23	14.3	0.0	13.3	6.9	20.96	3.3	0.0	12.3	12.3
9.65	13.1	0.0	14.1	7.7	20.96	0.0	15.5	0.0	0.0
10.48	11.9	0.0	14.5	8.0					

Pathloss Calculation

Path data for case # 1	HAUPPAUGE		COAST 205	
Latitude	40 48 54.1		40 37 46.8	
Longitude	73 14 17.8		73 21 18.4	
Antenna Center Agl	12.14 ft.	3.70 m.	50.99 ft.	15.54 m.
Site Elevation Amsl	109.91 ft.	33.50 m.	0.00 ft.	0.00 m.
Antenna Center Amsl	122.05 ft.	37.20 m.	50.99 ft.	15.54 m.
Effective Antenna Ht ...	12.14 ft.	3.70 m.	50.99 ft.	15.54 m.
Horizon Distance	0.05 mi.	0.09 km.	13.92 mi.	22.39 km.
Horizon Elevation Amsl .	141.90 ft.	43.25 m.	180.85 ft.	55.12 m.
Ray Crossover Angle	72.84 mr.			
Terrain Delta Ht	18.65 ft.	5.68 m.		
Effective Distance	50.30 mi.	80.93 km.		
Pathlength	14.19 mi.	22.83 km.		
Azimuth	205.66 deg.		25.58 deg.	
Frequency	13750 MHz			
K Factor	1.33 (K)			

Radio Climate Phrase ... Maritime Temperate Climate Over Land
Type of Path ..... Rounded Single Object
Free Space Path Loss ... 142.3 dB Atmospheric Loss ... 0.541 dB
Diff. Loss .... 60.0 dB (202.3 dB) Tropo. Loss ... 98.2 dB (240.5 dB)
Terrain data type ..... 1.0 ARC Second

Losses	L-Fspl	Sigma	Controlling	Propagation Mode
197.1 dB	54.8 dB	3.6 dB	20. %	Diffraction
194.3 dB	51.9 dB	3.6 dB	1. %	Diffraction
193.5 dB	51.2 dB	3.7 dB	0.1 %	Diffraction
193.0 dB	50.6 dB	3.7 dB	0.01 %	Diffraction
192.4 dB	50.0 dB	3.8 dB	0.0025%	Diffraction

The OH loss calculations considered a terrain profile of 790 points.
The list below shows the highest point in each fiftieth of the path length.

Dist. (km.)	Elev. (m.)	Obstr. (m.)	K=Inf. Clrnce. (m.)	K= 1.33 Clrnce. (m.)	Dist. (km.)	Elev. (m.)	Obstr. (m.)	K=Inf. Clrnce. (m.)	K= 1.33 Clrnce. (m.)
0.00	33.5	3.7	0.0	0.0	11.43	10.6	0.0	15.8	8.1
0.09	37.2	5.8	-5.9	-6.0	11.89	9.1	0.0	16.8	9.1
0.43	49.0	6.1	-18.3	-18.9	12.33	7.9	0.0	17.6	9.9
0.46	48.3	6.1	-17.6	-18.2	12.79	7.6	0.0	17.4	9.9
0.93	42.0	0.0	-5.7	-6.9	13.25	6.2	0.0	18.4	10.9
1.42	39.6	0.0	-3.7	-5.5	13.72	5.6	0.0	18.6	11.2
1.85	36.4	0.0	-1.0	-3.3	14.18	4.6	0.0	19.2	11.9
2.34	33.7	0.0	1.3	-1.5	14.61	2.6	0.0	20.7	13.6
2.95	30.5	0.0	3.9	0.5	15.11	1.5	0.0	21.3	14.5
3.65	31.2	0.0	2.6	-1.6	15.92	1.4	0.0	20.7	14.2
3.67	31.1	0.0	2.6	-1.6	16.03	1.5	0.0	20.5	14.1
4.37	29.9	0.0	3.1	-1.6	16.50	1.3	0.0	20.3	14.1
4.57	27.0	0.0	5.8	0.9	16.90	0.0	0.0	21.2	15.3
5.03	27.0	0.0	5.4	0.1	17.36	0.0	0.0	20.7	15.1
5.58	27.5	0.0	4.4	-1.3	17.83	0.0	0.0	20.3	15.0
6.11	26.8	0.0	4.7	-1.4	18.29	0.0	0.0	19.8	15.0
6.39	22.6	0.0	8.6	2.4	18.72	0.0	0.0	19.4	14.9
7.26	21.0	0.0	9.3	2.6	19.19	0.0	0.0	19.0	14.9
7.47	21.9	0.0	8.2	1.5	20.08	0.0	0.0	18.1	14.9
7.96	19.4	0.0	10.2	3.3	20.23	3.2	0.0	14.9	11.8
8.25	18.3	0.0	11.1	4.0	20.63	0.9	0.0	16.7	14.0
8.68	16.9	0.0	12.1	4.8	21.01	0.9	0.0	16.3	14.1

9.43	15.9	0.0	12.4	4.9	21.47	0.9	0.0	15.9	14.2
9.72	16.7	0.0	11.3	3.8	22.37	1.3	0.0	14.7	14.1
10.07	12.1	0.0	15.6	8.0	22.78	4.4	0.0	11.1	11.1
10.65	11.5	0.0	15.6	8.0	22.83	0.0	15.5	0.0	0.0
10.97	11.2	0.0	15.6	8.0					

Pathloss Calculation

Path data for case # 1	HAUPPAUGE		COAST 210	
Latitude	40 48 54.1		40 37 26.9	
Longitude	73 14 17.8		73 23 7.5	
Antenna Center Agl	12.14 ft.	3.70 m.	50.99 ft.	15.54 m.
Site Elevation Amsl	109.91 ft.	33.50 m.	0.00 ft.	0.00 m.
Antenna Center Amsl	122.05 ft.	37.20 m.	50.99 ft.	15.54 m.
Effective Antenna Ht ...	12.14 ft.	3.70 m.	50.99 ft.	15.54 m.
Horizon Distance	0.05 mi.	0.08 km.	14.99 mi.	24.12 km.
Horizon Elevation Amsl .	142.20 ft.	43.34 m.	176.35 ft.	53.75 m.
Ray Crossover Angle	75.34 mr.			
Terrain Delta Ht	17.97 ft.	5.48 m.		
Effective Distance	54.14 mi.	87.12 km.		
Pathlength	15.27 mi.	24.57 km.		
Azimuth	210.44 deg.		30.34 deg.	
Frequency	13750 MHz			
K Factor	1.33 (K)			

Radio Climate Phrase ... Maritime Temperate Climate Over Land
Type of Path ..... Rounded Single Object
Free Space Path Loss ... 143.0 dB Atmospheric Loss ... 0.583 dB
Diff. Loss .... 61.8 dB (204.8 dB) Tropo. Loss ... 98.4 dB (241.3 dB)
Terrain data type ..... 1.0 ARC Second

Losses	L-Fspl	Sigma	Controlling Propagation Mode	
199.7 dB	56.7 dB	3.6 dB	20. %	Diffraction
196.6 dB	53.6 dB	3.6 dB	1. %	Diffraction
195.8 dB	52.8 dB	3.7 dB	0.1 %	Diffraction
195.2 dB	52.2 dB	3.8 dB	0.01 %	Diffraction
194.5 dB	51.6 dB	3.8 dB	0.0025%	Diffraction

The OH loss calculations considered a terrain profile of 869 points.
The list below shows the highest point in each fiftieth of the path length.

Dist. (km.)	Elev. (m.)	Obstr. (m.)	K=Inf. Clrnce. (m.)	K= 1.33 Clrnce. (m.)	Dist. (km.)	Elev. (m.)	Obstr. (m.)	K=Inf. Clrnce. (m.)	K= 1.33 Clrnce. (m.)
0.00	33.5	3.7	0.0	0.0	12.29	7.7	0.0	18.7	9.8
0.08	37.2	5.8	-5.9	-6.0	13.08	5.1	0.0	20.6	11.7
0.45	47.7	6.1	-16.9	-17.6	13.48	6.1	0.0	19.2	10.4
0.51	46.8	6.1	-16.2	-16.9	13.76	5.3	0.0	19.7	11.0
0.99	41.2	0.0	-4.9	-6.3	14.27	3.7	0.0	21.0	12.3
1.50	39.8	0.0	-3.9	-5.9	14.75	3.0	0.0	21.1	12.6
1.98	36.7	0.0	-1.2	-3.9	15.72	2.7	0.0	20.6	12.4
2.46	33.8	0.0	1.2	-2.0	15.77	3.1	0.0	20.2	12.0
2.97	32.1	0.0	2.5	-1.3	16.23	2.7	0.0	20.2	12.2
3.65	33.0	0.0	1.0	-3.5	17.08	1.8	0.0	20.3	12.8
3.94	31.0	0.0	2.7	-2.1	17.59	2.1	0.0	19.6	12.3
4.53	33.0	0.0	0.2	-5.1	17.96	2.4	0.0	18.9	11.9
5.24	28.0	0.0	4.6	-1.4	18.49	2.4	0.0	18.5	11.8
5.86	29.0	0.0	3.0	-3.4	18.69	2.2	0.0	18.5	12.0
5.92	28.3	0.0	3.7	-2.9	19.17	0.0	0.0	20.3	14.2
6.40	25.4	0.0	6.2	-0.7	19.68	0.0	0.0	19.9	14.2
7.19	24.5	0.0	6.3	-1.1	20.16	0.0	0.0	19.4	14.2
7.79	23.0	0.0	7.3	-0.4	20.65	0.0	0.0	19.0	14.2
7.87	22.0	0.0	8.3	0.5	21.16	0.0	0.0	18.6	14.3
8.38	18.2	0.0	11.6	3.6	21.64	0.0	0.0	18.1	14.4
8.86	17.1	0.0	12.3	4.1	22.12	0.0	0.0	17.7	14.5
9.34	15.7	0.0	13.2	4.8	22.63	0.0	0.0	17.3	14.7

9.85	14.9	0.0	13.6	5.0	23.11	0.0	0.0	16.8	14.8
10.34	13.4	0.0	14.7	6.0	23.59	0.0	0.0	16.4	15.0
10.82	12.8	0.0	14.9	6.1	24.10	0.0	0.0	16.0	15.3
11.33	11.3	0.0	15.9	7.0	24.57	0.0	15.5	0.0	0.0
11.81	10.7	0.0	16.1	7.2					

Pathloss Calculation

Path data for case # 1	HAUPPAUGE		COAST 215	
Latitude	40 48 54.1		40 36 43.3	
Longitude	73 14 17.8		73 26 1.0	
Antenna Center Agl	12.14 ft.	3.70 m.	50.99 ft.	15.54 m.
Site Elevation Amsl	109.91 ft.	33.50 m.	0.00 ft.	0.00 m.
Antenna Center Amsl	122.05 ft.	37.20 m.	50.99 ft.	15.54 m.
Effective Antenna Ht ...	12.14 ft.	3.70 m.	50.99 ft.	15.54 m.
Horizon Distance	0.05 mi.	0.08 km.	17.11 mi.	27.53 km.
Horizon Elevation Amsl .	142.33 ft.	43.38 m.	171.01 ft.	52.12 m.
Ray Crossover Angle	77.82 mr.			
Terrain Delta Ht	23.96 ft.	7.30 m.		
Effective Distance	61.56 mi.	99.04 km.		
Pathlength	17.36 mi.	27.94 km.		
Azimuth	216.28 deg.		36.15 deg.	
Frequency	13750 MHz			
K Factor	1.33 (K)			

Radio Climate Phrase ... Maritime Temperate Climate Over Land
Type of Path ..... Rounded Single Object
Free Space Path Loss ... 144.1 dB Atmospheric Loss ... 0.662 dB
Diff. Loss .... 61.7 dB (205.8 dB) Tropo. Loss ... 98.4 dB (242.4 dB)
Terrain data type ..... 1.0 ARC Second

Losses	L-Fspl	Sigma	Controlling	Propagation Mode
200.8 dB	56.7 dB	3.6 dB	20. %	Diffraction
197.3 dB	53.2 dB	3.7 dB	1. %	Diffraction
196.3 dB	52.2 dB	3.8 dB	0.1 %	Diffraction
195.6 dB	51.6 dB	3.8 dB	0.01 %	Diffraction
194.9 dB	50.8 dB	3.9 dB	0.0025%	Diffraction

The OH loss calculations considered a terrain profile of 1016 points.
The list below shows the highest point in each fiftieth of the path length.

Dist. (km.)	Elev. (m.)	Obstr. (m.)	K=Inf. Clrnce. (m.)	K= 1.33 Clrnce. (m.)	Dist. (km.)	Elev. (m.)	Obstr. (m.)	K=Inf. Clrnce. (m.)	K= 1.33 Clrnce. (m.)
0.00	33.5	3.7	0.0	0.0	13.99	7.4	0.0	19.0	7.5
0.08	37.3	5.7	-5.9	-6.0	14.62	7.6	0.0	18.2	6.8
0.41	46.0	6.1	-15.2	-15.9	15.31	7.5	0.0	17.8	6.4
0.63	46.1	0.0	-9.4	-10.4	16.09	7.6	0.0	17.1	5.9
1.43	41.6	0.0	-5.5	-7.7	16.22	6.2	0.0	18.4	7.2
2.07	37.3	0.0	-1.7	-4.8	17.30	5.9	0.0	17.9	7.0
2.26	35.0	0.0	0.5	-2.9	17.35	6.1	0.0	17.6	6.8
2.81	33.2	0.0	1.9	-2.3	18.34	4.6	0.0	18.4	8.0
3.66	33.3	0.0	1.1	-4.2	18.45	4.6	0.0	18.3	8.0
3.97	32.0	0.0	2.1	-3.5	19.17	3.3	0.0	19.0	9.1
4.54	31.6	0.0	2.1	-4.2	19.91	4.7	0.0	17.1	7.7
5.04	31.0	0.0	2.3	-4.5	20.66	0.5	0.0	20.6	11.8
5.95	30.0	0.0	2.6	-5.1	21.21	3.0	0.0	17.7	9.3
6.33	28.9	0.0	3.4	-4.7	21.24	3.0	0.0	17.7	9.3
7.24	21.6	0.0	10.0	1.2	21.82	0.0	0.0	20.3	12.4
7.57	23.6	0.0	7.8	-1.3	22.37	0.0	0.0	19.9	12.5
7.90	23.0	0.0	8.1	-1.3	22.92	0.0	0.0	19.4	12.6
8.62	21.6	0.0	8.9	-1.0	23.47	0.0	0.0	19.0	12.8
8.95	18.2	0.0	12.1	2.0	24.05	0.0	0.0	18.6	13.0
10.05	15.8	0.0	13.6	3.0	25.10	0.2	0.0	17.6	13.4
10.08	16.0	0.0	13.4	2.8	25.15	0.0	0.0	17.7	13.6
10.69	14.0	0.0	14.9	4.1	26.23	3.3	0.0	13.5	10.9

11.18	12.4	0.0	16.2	5.1	26.28	3.3	0.0	13.5	10.9
11.76	10.7	0.0	17.4	6.2	26.83	3.0	0.0	13.3	11.6
12.34	9.8	0.0	17.9	6.5	27.60	2.2	0.0	13.6	13.0
12.86	5.4	0.0	21.8	10.4	27.94	0.0	15.5	0.0	0.0
13.88	7.6	0.0	18.8	7.3					

Pathloss Calculation

Path data for case # 1	HAUPPAUGE		COAST 220	
Latitude	40 48 54.1		40 36 8.5	
Longitude	73 14 17.8		73 28 27.2	
Antenna Center Agl	12.14 ft.	3.70 m.	50.99 ft.	15.54 m.
Site Elevation Amsl	109.91 ft.	33.50 m.	0.00 ft.	0.00 m.
Antenna Center Amsl	122.05 ft.	37.20 m.	50.99 ft.	15.54 m.
Effective Antenna Ht ...	12.14 ft.	3.70 m.	50.99 ft.	15.54 m.
Horizon Distance	0.05 mi.	0.08 km.	18.94 mi.	30.48 km.
Horizon Elevation Amsl .	142.30 ft.	43.37 m.	167.56 ft.	51.07 m.
Ray Crossover Angle	79.16 mr.			
Terrain Delta Ht	21.33 ft.	6.50 m.		
Effective Distance	68.10 mi.	109.57 km.		
Pathlength	19.21 mi.	30.91 km.		
Azimuth	220.25 deg.		40.10 deg.	
Frequency	13750 MHz			
K Factor	1.33 (K)			

Radio Climate Phrase ... Maritime Temperate Climate Over Land
Type of Path ..... Rounded Single Object
Free Space Path Loss ... 145.0 dB Atmospheric Loss ... 0.733 dB
Diff. Loss .... 63.1 dB (208.1 dB) Tropo. Loss ... 98.2 dB (243.2 dB)
Terrain data type ..... 1.0 ARC Second

Losses	L-Fspl	Sigma	Controlling	Propagation Mode
203.1 dB	58.2 dB	3.6 dB	20. %	Diffraction
199.2 dB	54.3 dB	3.7 dB	1. %	Diffraction
198.2 dB	53.2 dB	3.8 dB	0.1 %	Diffraction
197.4 dB	52.4 dB	3.9 dB	0.01 %	Diffraction
196.6 dB	51.6 dB	4.0 dB	0.0025%	Diffraction

The OH loss calculations considered a terrain profile of 1145 points.
The list below shows the highest point in each fiftieth of the path length.

Dist. (km.)	Elev. (m.)	Obstr. (m.)	K=Inf. Clrnce. (m.)	K= 1.33 Clrnce. (m.)	Dist. (km.)	Elev. (m.)	Obstr. (m.)	K=Inf. Clrnce. (m.)	K= 1.33 Clrnce. (m.)
0.00	33.5	3.7	0.0	0.0	15.46	10.0	0.0	16.3	2.2
0.08	37.3	5.7	-5.9	-6.0	16.35	9.1	0.0	16.6	2.6
0.59	45.0	0.0	-8.2	-9.3	17.13	9.2	0.0	16.0	2.1
0.68	46.8	0.0	-10.1	-11.3	17.32	8.3	0.0	16.8	2.9
1.43	40.9	0.0	-4.7	-7.2	18.40	9.4	0.0	14.9	1.3
2.13	37.6	0.0	-1.9	-5.5	18.56	7.8	0.0	16.4	2.9
2.78	34.4	0.0	0.9	-3.7	19.40	8.6	0.0	15.0	1.8
3.51	34.9	0.0	-0.2	-5.9	19.81	6.2	0.0	17.1	4.1
4.32	35.2	0.0	-1.0	-7.8	20.73	6.7	0.0	16.0	3.6
4.35	35.0	0.0	-0.8	-7.6	21.05	4.9	0.0	17.5	5.3
5.27	32.6	0.0	0.9	-7.1	22.00	7.3	0.0	14.5	2.9
5.59	27.1	0.0	6.2	-2.1	22.59	6.7	0.0	14.7	3.6
6.67	24.8	0.0	7.8	-1.8	22.89	0.0	0.0	21.2	10.3
6.81	23.2	0.0	9.3	-0.4	23.51	0.0	0.0	20.7	10.5
7.94	21.1	0.0	10.5	-0.2	24.13	0.0	0.0	20.3	10.6
8.46	24.4	0.0	6.9	-4.3	24.73	0.0	0.0	19.9	10.9
8.73	23.4	0.0	7.7	-3.7	25.65	0.5	0.0	18.7	10.8
9.29	22.2	0.0	8.5	-3.3	25.97	0.0	0.0	19.0	11.4
9.92	17.1	0.0	13.2	0.9	26.59	0.0	0.0	18.6	11.8
10.51	14.0	0.0	15.8	3.2	27.22	0.0	0.0	18.1	12.2
11.13	11.8	0.0	17.6	4.6	27.84	0.0	0.0	17.7	12.7
11.86	11.0	0.0	17.9	4.6	28.89	3.0	0.0	13.9	10.5

12.37	10.7	0.0	17.9	4.3	29.05	2.9	0.0	13.9	10.8
13.40	10.0	0.0	17.8	4.0	29.68	3.0	0.0	13.4	11.2
13.91	10.3	0.0	17.2	3.2	30.30	3.0	0.0	12.9	11.8
14.70	10.4	0.0	16.5	2.5	30.91	0.0	15.5	0.0	0.0
15.05	10.5	0.0	16.2	2.1					

Pathloss Calculation

Path data for case # 1	HAUPPAUGE		COAST 225	
Latitude	40 48 54.1		40 35 25.4	
Longitude	73 14 17.8		73 32 9.3	
Antenna Center Agl	12.14 ft.	3.70 m.	50.99 ft.	15.54 m.
Site Elevation Amsl	109.91 ft.	33.50 m.	0.00 ft.	0.00 m.
Antenna Center Amsl	122.05 ft.	37.20 m.	50.99 ft.	15.54 m.
Effective Antenna Ht ...	12.14 ft.	3.70 m.	50.99 ft.	15.54 m.
Horizon Distance	0.05 mi.	0.08 km.	21.71 mi.	34.93 km.
Horizon Elevation Amsl .	142.07 ft.	43.30 m.	164.18 ft.	50.04 m.
Ray Crossover Angle	80.22 mr.			
Terrain Delta Ht	21.48 ft.	6.55 m.		
Effective Distance	78.05 mi.	125.59 km.		
Pathlength	22.02 mi.	35.43 km.		
Azimuth	225.34 deg.		45.14 deg.	
Frequency	13750 MHz			
K Factor	1.33 (K)			

Radio Climate Phrase ... Maritime Temperate Climate Over Land
Type of Path ..... Rounded Single Object
Free Space Path Loss ... 146.2 dB Atmospheric Loss ... 0.840 dB
Diff. Loss .... 74.2 dB (220.3 dB) Tropo. Loss ... 97.9 dB (244.1 dB)
Terrain data type ..... 1.0 ARC Second

Losses	L-Fspl	Sigma	Controlling Propagation Mode
215.5 dB	69.3 dB	3.6 dB	20. % Diffraction
211.0 dB	64.9 dB	3.7 dB	1. % Diffraction
209.7 dB	63.6 dB	3.9 dB	0.1 % Diffraction
208.9 dB	62.7 dB	4.0 dB	0.01 % Diffraction
207.9 dB	61.7 dB	4.1 dB	0.0025% Diffraction

The OH loss calculations considered a terrain profile of 1344 points.
The list below shows the highest point in each fiftieth of the path length.

Dist. (km.)	Elev. (m.)	Obstr. (m.)	K=Inf. Clrnce. (m.)	K= 1.33 Clrnce. (m.)	Dist. (km.)	Elev. (m.)	Obstr. (m.)	K=Inf. Clrnce. (m.)	K= 1.33 Clrnce. (m.)
0.00	33.5	3.7	0.0	0.0	17.96	12.2	0.0	14.0	-4.5
0.08	37.2	5.8	-5.8	-6.0	19.07	11.6	0.0	13.9	-4.5
0.69	45.9	0.0	-9.1	-10.6	19.42	11.5	0.0	13.8	-4.5
0.74	46.8	0.0	-10.1	-11.6	20.02	10.1	0.0	14.8	-3.4
1.74	38.0	0.0	-1.9	-5.3	21.08	10.1	0.0	14.2	-3.6
2.32	38.6	0.0	-2.8	-7.4	21.63	10.0	0.0	14.0	-3.6
3.53	36.2	0.0	-1.1	-7.8	22.50	8.4	0.0	15.0	-2.1
3.59	36.6	0.0	-1.6	-8.4	22.85	7.2	0.0	16.0	-0.9
4.27	36.0	0.0	-1.4	-9.3	23.61	9.4	0.0	13.3	-3.1
5.43	26.0	0.0	7.9	-1.7	24.59	4.2	0.0	17.9	2.2
6.36	26.0	0.0	7.3	-3.6	25.04	3.9	0.0	18.0	2.7
6.80	28.5	0.0	4.6	-6.9	25.59	4.9	0.0	16.6	1.8
7.36	25.0	0.0	7.7	-4.5	26.31	3.4	0.0	17.7	3.5
7.83	24.1	0.0	8.3	-4.5	26.94	0.0	0.0	20.7	7.2
8.84	25.8	0.0	6.0	-7.9	27.65	0.0	0.0	20.3	7.6
9.42	24.0	0.0	7.4	-7.0	28.97	2.4	0.0	17.1	6.1
10.05	21.1	0.0	10.0	-5.0	29.34	3.0	0.0	16.3	5.7
10.63	16.1	0.0	14.6	-1.0	30.00	3.2	0.0	15.7	6.1
11.34	14.6	0.0	15.7	-0.4	30.48	3.0	0.0	15.5	6.6
12.74	13.0	0.0	16.4	-0.7	31.22	3.0	0.0	15.1	7.3
13.19	14.0	0.0	15.1	-2.2	31.90	3.0	0.0	14.6	8.0
13.74	15.2	0.0	13.6	-4.0	33.22	3.0	0.0	13.8	9.5

14.19	15.2	0.0	13.3	-4.5	33.30	0.1	0.0	16.8	12.6
14.90	14.1	0.0	14.0	-4.0	34.20	3.0	0.0	13.2	10.8
15.99	11.4	0.0	16.0	-2.3	34.94	3.2	0.0	12.7	11.7
16.99	13.5	0.0	13.3	-5.2	35.43	0.0	15.5	0.0	0.0
17.07	13.6	0.0	13.2	-5.3					

Pathloss Calculation

Path data for case # 1	HAUPPAUGE		COAST 230	
Latitude	40 48 54.1		40 35 18.4	
Longitude	73 14 17.8		73 35 6.4	
Antenna Center Agl	12.14 ft.	3.70 m.	50.99 ft.	15.54 m.
Site Elevation Amsl	109.91 ft.	33.50 m.	0.00 ft.	0.00 m.
Antenna Center Amsl	122.05 ft.	37.20 m.	50.99 ft.	15.54 m.
Effective Antenna Ht ...	12.14 ft.	3.70 m.	50.99 ft.	15.54 m.
Horizon Distance	0.05 mi.	0.08 km.	13.52 mi.	21.75 km.
Horizon Elevation Amsl .	141.77 ft.	43.21 m.	57.98 ft.	17.67 m.
Ray Crossover Angle	80.79 mr.			
Terrain Delta Ht	20.88 ft.	6.36 m.		
Effective Distance	82.01 mi.	131.96 km.		
Pathlength	24.01 mi.	38.63 km.		
Azimuth	229.47 deg.		49.25 deg.	
Frequency	13750 MHz			
K Factor	1.33 (K)			

Radio Climate Phrase ... Maritime Temperate Climate Over Land
Type of Path ..... Irregular Terrain
Free Space Path Loss ... 146.9 dB Atmospheric Loss ... 0.916 dB
Diff. Loss .... 129.0 dB (275.9 dB) Tropo. Loss ... 97.7 dB (244.6 dB)
Terrain data type ..... 1.0 ARC Second

Losses	L-Fspl	Sigma	Controlling Propagation Mode	
234.0 dB	87.1 dB	3.9 dB	20. %	Troposcattering
223.1 dB	76.2 dB	5.6 dB	1. %	Troposcattering
216.6 dB	69.7 dB	6.8 dB	0.1 %	Troposcattering
211.5 dB	64.6 dB	7.9 dB	0.01 %	Troposcattering
210.3 dB	63.4 dB	8.1 dB	0.0025%	Troposcattering

The OH loss calculations considered a terrain profile of 1493 points.
The list below shows the highest point in each fiftieth of the path length.

Dist. (km.)	Elev. (m.)	Obstr. (m.)	K=Inf. Clrnce. (m.)	K= 1.33 Clrnce. (m.)	Dist. (km.)	Elev. (m.)	Obstr. (m.)	K=Inf. Clrnce. (m.)	K= 1.33 Clrnce. (m.)
0.00	33.5	3.7	0.0	0.0	19.62	14.0	0.0	12.2	-9.8
0.08	37.1	5.9	-5.8	-6.0	20.09	13.1	0.0	12.8	-9.1
0.75	46.2	0.0	-9.4	-11.1	21.20	9.4	0.0	15.9	-5.9
0.78	46.7	0.0	-9.9	-11.7	22.19	11.4	0.0	13.4	-8.1
1.97	39.2	0.0	-3.1	-7.4	22.47	11.0	0.0	13.6	-7.8
2.48	39.7	0.0	-3.9	-9.2	23.95	8.1	0.0	15.7	-5.1
3.86	37.9	0.0	-2.8	-10.7	24.42	9.9	0.0	13.6	-6.8
3.93	38.7	0.0	-3.7	-11.8	24.78	8.3	0.0	15.0	-5.2
4.68	30.3	0.0	4.3	-5.1	25.66	4.9	0.0	17.9	-1.7
5.41	28.9	0.0	5.3	-5.3	26.36	5.0	0.0	17.4	-1.7
6.19	27.0	0.0	6.7	-5.1	27.16	3.9	0.0	18.0	-0.3
7.38	31.0	0.0	2.1	-11.5	28.04	2.1	0.0	19.4	1.8
8.02	27.1	0.0	5.6	-8.9	29.24	1.7	0.0	19.1	2.9
8.67	27.0	0.0	5.3	-10.0	29.88	1.1	0.0	19.4	3.9
9.55	22.0	0.0	9.8	-6.5	30.14	0.0	0.0	20.3	5.2
10.07	19.8	0.0	11.7	-5.2	30.92	0.0	0.0	19.9	5.8
11.08	18.3	0.0	12.7	-5.3	32.37	3.7	0.0	15.4	3.4
11.60	15.2	0.0	15.5	-3.0	33.20	2.9	0.0	15.7	5.1
12.84	16.8	0.0	13.2	-6.3	33.75	3.0	0.0	15.2	5.5
13.25	17.4	0.0	12.4	-7.4	34.76	3.7	0.0	14.0	6.0
13.98	16.8	0.0	12.6	-7.7	35.22	5.6	0.0	11.9	4.8
15.40	17.1	0.0	11.5	-9.6	36.23	3.7	0.0	13.2	8.0

15.61	19.0	0.0	9.4	-11.7	36.31	3.3	0.0	13.6	8.6
16.88	17.7	0.0	10.1	-11.6	37.61	3.4	0.0	12.7	10.4
17.01	17.2	0.0	10.5	-11.2	37.87	3.0	0.0	12.9	11.2
17.84	16.4	0.0	10.8	-11.0	38.63	0.0	15.5	0.0	0.0
18.67	14.8	0.0	12.0	-10.0					

CERTIFICATE OF SERVICE

I, Donna Brown, hereby certify that on this 24th day of July, 2002, a copy of the foregoing "Petition for Reconsideration" has been served via hand delivery upon the following:

Tom Tycz
Federal Communications Commission
445 12th Street, SW
Washington DC 20554

Sylvia Lam
Federal Communications Commission
445 12th Street, SW
Washington DC 20554

Jennifer Gilsenan
Federal Communications Commission
445 12th Street, SW
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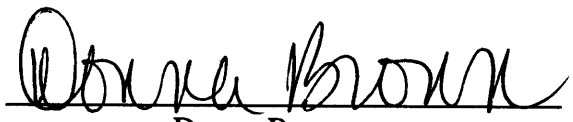

Donna Brown