

GSM band Interference Analysis

A. Interference Analysis Description

Comsearch provided the following interference report to Qualcomm. Each page represents an interference case analysis for a given frequency in the range of 953-959.7 MHz with the transmitter antenna located on building E (location detailed below).

The EIRP listed towards the bottom of each page is the allowable transmission power level that will result in zero interference with existing RF links. Based on this report, Qualcomm selected frequencies that allow a radiated transmission power of 20 Watts EIRP.

B. Antennae Locations and Heights

Building	N	W	Elevation (ft)
E	32° 52.778'	117° 12.166'	489
L	32° 53.715'	117° 11.729'	529

*Distance between building E and building L is approximately one mile.

C. Summary of Comsearch Frequency versus Power Analysis

Frequency (MHz)	Allowable EIRP Building E (dBm)	
	EIRP (dBm)	EIRP (W)
953	32.9	1.95
953.2	28	0.63
953.4	28	0.63
955.2	32.9	1.95
955.4	38.9	7.76
958	23	0.20
958.2	42.9	19.50
958.8	42.9	19.50
959.4	31	1.26

Frequency (MHz)	Allowable EIRP Building L (dBm)	
	EIRP (dBm)	EIRP (W)
953	22	0.16
953.4	28	0.63
955.2	32.9	1.95
955.4	25	0.32
958	42.9	19.50
958.2	42.9	19.50
958.4	42.9	19.50
959.4	31	1.26

Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147

(703)726-5826 www.comsearch.com

PCN Date: 08/25/2003

Job Number: 030825COMSKD01

New Path

RCN Number: 03082512

Administrative Information

BLDG E

CA

MOBILE

CA

Status / License Basis

PROPOSED / PRIMARY OPERATION

PROPOSED / PRIMARY OPERATION

Call Sign

Licensee Code

QUAINC

QUAINC

Licensee Name

QUALCOMM INCORPORATED

QUALCOMM INCORPORATED

Radio Service / Station Class

MG -- Microwave Industrial/Business Pool

FXO -- Fixed

Site Information

Latitude (NAD 83)

32 ° 52' 46.7" N

32 ° 53' 41.0" N

Longitude (NAD 83)

117 ° 12' 10.0" W

116 ° 45' 41.0" W

Ground Elevation (m/ft-AMSL)

149.04 / 489.0

30.48 / 100.0

Antenna Structure Registration #

Path Azimuth (°)

87.561

267.801

Path Length (km / miles)

41.336 / 25.685

Transmit Antenna

03900K

Manufacturer

SCALA ELECTRONICS

Model

OGB3-900K

Gain (dBi) / Beamwidth (°) / Tilt (°)

5.2 / 20.00 / -0.35

Centerline (m / ft - AGL)

36.58 / 120.0

Receive Antenna

S00000

Manufacturer

SCALA ELECTRONICS

Model

MF-960B

Gain (dBi) / Beamwidth (°)

16.2 / 14.00

Centerline (m / ft - AGL)

6.10 / 20.0

Diversity Receive Antenna

Manufacturer

Model

Gain (dBi) / Beamwidth (°)

Centerline (m / ft - AGL)

Radio Information

TEMB31

999999

Manufacturer

INTERWAVE COMMUNICATIONS

RECEIVE

Model

GSM BTS

ONLY

Model Description

Emission Designator / Modulation

270KGXW 16 QAM

Loading

DIGITAL DIG 0.0

DIGITAL DIG 0.0

Stability (%)

0.00015

0.00015

Nominal Coordinated Maximum

Nominal Coordinated Maximum

Power (dBm)

38.5

Received Level (dBm)

-81.2

EIRP (dBm)

28.0

Fixed Loss: Tx / Common (dB)

15.0 / 0.7

0.0 / 1.0

Free Space Loss (dB)

124.4

Transmit Frequencies (MHz)

953.2000V(5)

953.4000V(7)

Microwave Path Data Sheet

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New Path

RCN Number: 03082512

Administrative Information	BLDG L	CA	MOBILE	CA
Status / License Basis	PROPOSED / PRIMARY OPERATION		PROPOSED / PRIMARY OPERATION	
Call Sign				
Licensee Code	QUAINC		QUAINC	
Licensee Name	QUALCOMM INCORPORATED		QUALCOMM INCORPORATED	
Radio Service / Station Class	MG -- Microwave Industrial/Business Pool		FXO -- Fixed	

Site Information

Latitude (NAD 83)	32 ° 53' 30.7" N	32 ° 53' 41.0" N
Longitude (NAD 83)	117 ° 11' 43.7" W	116 ° 45' 41.0" W
Ground Elevation (m/ft-AMSL)	161.23 / 529.0	30.48 / 100.0
Antenna Structure Registration #		
Path Azimuth (°)	89.435	269.670
Path Length (km / miles)	40.617 / 25.238	

Transmit Antenna

Manufacturer	03900K
Model	SCALA ELECTRONICS
Gain (dBi) / Beamwidth (°) / Tilt (°)	OGB3-900K
Centerline (m / ft - AGL)	5.2 / 20.00 / -0.36
	36.58 / 120.0

Receive Antenna

Manufacturer	S00000
Model	SCALA ELECTRONICS
Gain (dBi) / Beamwidth (°)	MF-960B
Centerline (m / ft - AGL)	16.2 / 14.00
	6.10 / 20.0

Diversity Receive Antenna

Manufacturer	
Model	
Gain (dBi) / Beamwidth (°)	
Centerline (m / ft - AGL)	

Radio Information

Manufacturer	INTERWAVE COMMUNICATIONS			RECEIVE		
Model	GSM BTS			ONLY		
Model Description						
Emission Designator / Modulation	270KGXW	16 QAM				
Loading	DIGITAL DIG 0.0			DIGITAL DIG 0.0		
Stability (%)	0.00015			0.00015		
	Nominal	Coordinated	Maximum	Nominal	Coordinated	Maximum
Power (dBm)		38.5				
Received Level (dBm)					-87.1	
EIRP (dBm)		22.0				
Fixed Loss: Tx / Common (dB)	21.0 / 0.7			0.0 / 1.0		
Free Space Loss (dB)			124.3			

Transmit Frequencies (MHz)

953.0000V(3)

Microwave Path Data Sheet

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Ground Elevation (m/ft-AMSL)	149.04 / 489.0	30.48 / 100.0
Antenna Structure Registration #		
Path Azimuth (°)	87.561	267.801
Path Length (km / miles)	41.336 / 25.685	

Transmit Antenna

Manufacturer	03900K
Model	SCALA ELECTRONICS
Gain (dBi) / Beamwidth (°) / Tilt (°)	OGB3-900K
Centerline (m / ft - AGL)	5.2 / 20.00 / -0.35
	36.58 / 120.0

Receive Antenna

Manufacturer	S00000
Model	SCALA ELECTRONICS
Gain (dBi) / Beamwidth (°)	MF-960B
Centerline (m / ft - AGL)	16.2 / 14.00
	6.10 / 20.0

Diversity Receive Antenna

Manufacturer	
Model	
Gain (dBi) / Beamwidth (°)	
Centerline (m / ft - AGL)	

Radio Information

Manufacturer	INTERWAVE COMMUNICATIONS			RECEIVE		
Model	GSM BTS			ONLY		
Model Description						
Emission Designator / Modulation	270KGXW	16 QAM				
Loading	DIGITAL DIG 0.0			DIGITAL DIG 0.0		
Stability (%)	0.00015			0.00015		
	Nominal	Coordinated	Maximum	Nominal	Coordinated	Maximum
Power (dBm)		38.5				
Received Level (dBm)					-76.2	
EIRP (dBm)		32.9				
Fixed Loss: Tx / Common (dB)	10.0 / 0.7			0.0 / 1.0		
Free Space Loss (dB)			124.4			

Transmit Frequencies (MHz)

955.2000V(12)

Microwave Path Data Sheet

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New Path

RCN Number: 03082512

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Status / License Basis		PROPOSED / PRIMARY OPERATION		PROPOSED / PRIMARY OPERATION	
Call Sign					
Licensee Code		QUAINC		QUAINC	
Licensee Name		QUALCOMM INCORPORATED		QUALCOMM INCORPORATED	
Radio Service / Station Class		MG -- Microwave Industrial/Business Pool		FXO -- Fixed	
Site Information					
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Ground Elevation (m/ft-AMSL)		149.04 / 489.0		30.48 / 100.0	
Antenna Structure Registration #					
Path Azimuth (°)		87.561		267.801	
Path Length (km / miles)		41.336 / 25.685			
Transmit Antenna					
Manufacturer		03900K			
Model		SCALA ELECTRONICS			
Gain (dBi) / Beamwidth (°) / Tilt (°)		OGB3-900K			
Centerline (m / ft - AGL)		5.2 / 20.00 / -0.35			
		36.58 / 120.0			
Receive Antenna					
Manufacturer				S00000	
Model				SCALA ELECTRONICS	
Gain (dBi) / Beamwidth (°)				MF-960B	
Centerline (m / ft - AGL)				16.2 / 14.00	
				6.10 / 20.0	
Diversity Receive Antenna					
Manufacturer					
Model					
Gain (dBi) / Beamwidth (°)					
Centerline (m / ft - AGL)					
Radio Information					
Manufacturer		TEMB31		999999	
Model		INTERWAVE COMMUNICATIONS		RECEIVE	
Model Description		GSM BTS		ONLY	
Emission Designator / Modulation		270KGXW 16 QAM			
Loading		DIGITAL DIG 0.0		DIGITAL DIG 0.0	
Stability (%)		0.00015		0.00015	
		Nominal	Coordinated	Maximum	
Power (dBm)			38.5		
Received Level (dBm)					-66.2
EIRP (dBm)			42.9		
Fixed Loss: Tx / Common (dB)		0.0 / 0.7		0.0 / 1.0	
Free Space Loss (dB)				124.4	
Transmit Frequencies (MHz)					
		958.2000V(6)		958.8000V(12)	

Microwave Path Data Sheet

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New Path

RCN Number: 03082512

Administrative Information	BLDG L	CA	MOBILE	CA
Status / License Basis	PROPOSED / PRIMARY OPERATION		PROPOSED / PRIMARY OPERATION	
Call Sign				
Licensee Code	QUAINC		QUAINC	
Licensee Name	QUALCOMM INCORPORATED		QUALCOMM INCORPORATED	
Radio Service / Station Class	MG -- Microwave Industrial/Business Pool		FXO -- Fixed	

Site Information		
Latitude (NAD 83)	32 ° 53' 30.7" N	32 ° 53' 41.0" N
Longitude (NAD 83)	117 ° 11' 43.7" W	116 ° 45' 41.0" W
Ground Elevation (m/ft-AMSL)	161.23 / 529.0	30.48 / 100.0
Antenna Structure Registration #		
Path Azimuth (°)	89.435	269.670
Path Length (km / miles)		40.617 / 25.238

Transmit Antenna	
Manufacturer	03900K SCALA ELECTRONICS
Model	OGB3-900K
Gain (dBi) / Beamwidth (°) / Tilt (°)	5.2 / 20.00 / -0.36
Centerline (m / ft - AGL)	36.58 / 120.0

Receive Antenna	
Manufacturer	S00000 SCALA ELECTRONICS
Model	MF-960B
Gain (dBi) / Beamwidth (°)	16.2 / 14.00
Centerline (m / ft - AGL)	6.10 / 20.0

Diversity Receive Antenna	
Manufacturer	
Model	
Gain (dBi) / Beamwidth (°)	
Centerline (m / ft - AGL)	

Radio Information	TEMB31	999999
Manufacturer	INTERWAVE COMMUNICATIONS	RECEIVE
Model	GSM BTS	ONLY
Model Description		
Emission Designator / Modulation	270KGXW 16 QAM	
Loading	DIGITAL DIG 0.0	DIGITAL DIG 0.0
Stability (%)	0.00015	0.00015
	Nominal Coordinated Maximum	Nominal Coordinated Maximum
Power (dBm)		
Received Level (dBm)		-76.1
EIRP (dBm)	32.9	
Fixed Loss: Tx / Common (dB)	10.0 / 0.7	0.0 / 1.0
Free Space Loss (dB)		124.3

Transmit Frequencies (MHz) 955.2000V(12)

Microwave Path Data Sheet

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Call Sign					
Licensee Code		QUAINC		QUAINC	
Licensee Name		QUALCOMM INCORPORATED		QUALCOMM INCORPORATED	
Radio Service / Station Class		MG -- Microwave Industrial/Business Pool		FXO -- Fixed	
Site Information					
Latitude (NAD 83)		32 ° 53' 30.7" N		32 ° 53' 41.0" N	
Longitude (NAD 83)		117 ° 11' 43.7" W		116 ° 45' 41.0" W	
Ground Elevation (m/ft-AMSL)		161.23 / 529.0		30.48 / 100.0	
Antenna Structure Registration #					
Path Azimuth (°)		89.435		269.670	
Path Length (km / miles)		40.617 / 25.238			
Transmit Antenna					
Manufacturer		03900K			
Model		SCALA ELECTRONICS			
Gain (dBi) / Beamwidth (°) / Tilt (°)		OGB3-900K			
Centerline (m / ft - AGL)		5.2 / 20.00 / -0.36			
		36.58 / 120.0			
Receive Antenna					
Manufacturer				S00000	
Model				SCALA ELECTRONICS	
Gain (dBi) / Beamwidth (°)				MF-960B	
Centerline (m / ft - AGL)				16.2 / 14.00	
				6.10 / 20.0	
Diversity Receive Antenna					
Manufacturer					
Model					
Gain (dBi) / Beamwidth (°)					
Centerline (m / ft - AGL)					
Radio Information					
Manufacturer		TEMB31		999999	
Model		INTERWAVE COMMUNICATIONS		RECEIVE	
Model Description		GSM BTS		ONLY	
Emission Designator / Modulation		270KGXW 16 QAM			
Loading		DIGITAL DIG 0.0		DIGITAL DIG 0.0	
Stability (%)		0.00015		0.00015	
		Nominal	Coordinated	Maximum	
Power (dBm)			38.5		
Received Level (dBm)					-66.1
EIRP (dBm)			42.9		
Fixed Loss: Tx / Common (dB)		0.0 / 0.7		0.0 / 1.0	
Free Space Loss (dB)				124.3	
Transmit Frequencies (MHz)					
		958.0000V(4)		958.2000V(6)	
		958.4000V(8)			

Microwave Path Data Sheet

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Status / License Basis	PROPOSED / PRIMARY OPERATION		PROPOSED / PRIMARY OPERATION	
Call Sign				
Licensee Code	QUAINC		QUAINC	
Licensee Name	QUALCOMM INCORPORATED		QUALCOMM INCORPORATED	
Radio Service / Station Class	MG -- Microwave Industrial/Business Pool		FXO -- Fixed	

Site Information

Latitude (NAD 83)	32 ° 52' 46.7" N	32 ° 53' 41.0" N
Longitude (NAD 83)	117 ° 12' 10.0" W	116 ° 45' 41.0" W
Ground Elevation (m/ft-AMSL)	149.04 / 489.0	30.48 / 100.0
Antenna Structure Registration #		
Path Azimuth (°)	87.561	267.801
Path Length (km / miles)	41.336 / 25.685	

Transmit Antenna

Manufacturer	03900K
Model	SCALA ELECTRONICS
Gain (dBi) / Beamwidth (°) / Tilt (°)	OGB3-900K
Centerline (m / ft - AGL)	5.2 / 20.00 / -0.35
	36.58 / 120.0

Receive Antenna

Manufacturer	S00000
Model	SCALA ELECTRONICS
Gain (dBi) / Beamwidth (°)	MF-960B
Centerline (m / ft - AGL)	16.2 / 14.00
	6.10 / 20.0

Diversity Receive Antenna

Manufacturer	
Model	
Gain (dBi) / Beamwidth (°)	
Centerline (m / ft - AGL)	

Radio Information

Manufacturer	INTERWAVE COMMUNICATIONS			RECEIVE		
Model	GSM BTS			ONLY		
Model Description						
Emission Designator / Modulation	270KGXW	16 QAM				
Loading	DIGITAL DIG 0.0			DIGITAL DIG 0.0		
Stability (%)	0.00015			0.00015		
	Nominal	Coordinated	Maximum	Nominal	Coordinated	Maximum
Power (dBm)		38.5				
Received Level (dBm)					-70.2	
EIRP (dBm)		38.9				
Fixed Loss: Tx / Common (dB)	4.0 / 0.7			0.0 / 1.0		
Free Space Loss (dB)		124.4				

Transmit Frequencies (MHz)

955.4000V(1)

Microwave Path Data Sheet

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Call Sign				
Licensee Code	QUAINC		QUAINC	
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	36.58 / 120.0

Receive Antenna

Manufacturer	S00000
Model	SCALA ELECTRONICS
Gain (dBi) / Beamwidth (°)	MF-960B
Centerline (m / ft - AGL)	16.2 / 14.00
	6.10 / 20.0

Diversity Receive Antenna

Manufacturer	
Model	
Gain (dBi) / Beamwidth (°)	
Centerline (m / ft - AGL)	

Radio Information

Manufacturer	INTERWAVE COMMUNICATIONS			RECEIVE		
Model	GSM BTS			ONLY		
Model Description						
Emission Designator / Modulation	270KGXW	16 QAM				
Loading	DIGITAL DIG 0.0			DIGITAL DIG 0.0		
Stability (%)	0.00015			0.00015		
	Nominal	Coordinated	Maximum	Nominal	Coordinated	Maximum
Power (dBm)		38.5				
Received Level (dBm)					-78.2	
EIRP (dBm)		31.0				
Fixed Loss: Tx / Common (dB)	12.0 / 0.7			0.0 / 1.0		
Free Space Loss (dB)			124.4			

Transmit Frequencies (MHz)

959.4000V(5)

Microwave Path Data Sheet

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Centerline (m / ft - AGL)	16.2 / 14.00
	6.10 / 20.0

Diversity Receive Antenna

Manufacturer	
Model	
Gain (dBi) / Beamwidth (°)	
Centerline (m / ft - AGL)	

Radio Information

Manufacturer	INTERWAVE COMMUNICATIONS			RECEIVE		
Model	GSM BTS			ONLY		
Model Description						
Emission Designator / Modulation	270KGXW	16 QAM				
Loading	DIGITAL DIG 0.0			DIGITAL DIG 0.0		
Stability (%)	0.00015			0.00015		
	Nominal	Coordinated	Maximum	Nominal	Coordinated	Maximum
Power (dBm)		38.5				
Received Level (dBm)					-84.1	
EIRP (dBm)		25.0				
Fixed Loss: Tx / Common (dB)	18.0 / 0.7			0.0 / 1.0		
Free Space Loss (dB)			124.3			

Transmit Frequencies (MHz)

955.4000V(1)

Microwave Path Data Sheet

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Centerline (m / ft - AGL)	5.2 / 20.00 / -0.36
	36.58 / 120.0

Receive Antenna

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Gain (dBi) / Beamwidth (°)	MF-960B
Centerline (m / ft - AGL)	16.2 / 14.00
	6.10 / 20.0

Diversity Receive Antenna

Manufacturer	
Model	
Gain (dBi) / Beamwidth (°)	
Centerline (m / ft - AGL)	

Radio Information

Manufacturer	INTERWAVE COMMUNICATIONS			RECEIVE		
Model	GSM BTS			ONLY		
Model Description						
Emission Designator / Modulation	270KGXW	16 QAM				
Loading	DIGITAL DIG 0.0			DIGITAL DIG 0.0		
Stability (%)	0.00015			0.00015		
	Nominal	Coordinated	Maximum	Nominal	Coordinated	Maximum
Power (dBm)		38.5				
Received Level (dBm)					-78.1	
EIRP (dBm)		31.0				
Fixed Loss: Tx / Common (dB)	12.0 / 0.7			0.0 / 1.0		
Free Space Loss (dB)			124.3			

Transmit Frequencies (MHz)

959.4000V(5)

Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147

(703)726-5826 www.comsearch.com

PCN Date: 08/25/2003

Job Number 030825COMSKD01

New Path

RCN Number: 03082512

Administrative Information	BLDG E	CA	MOBILE	CA
Status / License Basis	PROPOSED / PRIMARY OPERATION		PROPOSED / PRIMARY OPERATION	
Call Sign				
Licensee Code	QUAINC		QUAINC	
Licensee Name	QUALCOMM INCORPORATED		QUALCOMM INCORPORATED	
Radio Service / Station Class	MG -- Microwave Industrial/Business Pool		FXO -- Fixed	

Site Information

Latitude (NAD 83)	32 ° 52' 46.7" N	32 ° 53' 41.0" N
Longitude (NAD 83)	117 ° 12' 10.0" W	116 ° 45' 41.0" W
Ground Elevation (m/ft-AMSL)	149.04 / 489.0	30.48 / 100.0
Antenna Structure Registration #		
Path Azimuth (°)	87.561	267.801
Path Length (km / miles)	41.336 / 25.685	

Transmit Antenna

Manufacturer	03900K
Model	SCALA ELECTRONICS
Gain (dBi) / Beamwidth (°) / Tilt (°)	OGB3-900K
Centerline (m / ft - AGL)	5.2 / 20.00 / -0.35
	36.58 / 120.0

Receive Antenna

Manufacturer	S00000
Model	SCALA ELECTRONICS
Gain (dBi) / Beamwidth (°)	MF-960B
Centerline (m / ft - AGL)	16.2 / 14.00
	6.10 / 20.0

Diversity Receive Antenna

Manufacturer	
Model	
Gain (dBi) / Beamwidth (°)	
Centerline (m / ft - AGL)	

Radio Information

Manufacturer	INTERWAVE COMMUNICATIONS			RECEIVE		
Model	GSM BTS			ONLY		
Model Description						
Emission Designator / Modulation	270KGXW	16 QAM				
Loading	DIGITAL DIG 0.0			DIGITAL DIG 0.0		
Stability (%)	0.00015			0.00015		
	Nominal	Coordinated	Maximum	Nominal	Coordinated	Maximum
Power (dBm)		38.5				
Received Level (dBm)					-76.2	
EIRP (dBm)		32.9				
Fixed Loss: Tx / Common (dB)	10.0 / 0.7			0.0 / 1.0		
Free Space Loss (dB)			124.4			

Transmit Frequencies (MHz)

953.0000V(3)

Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147

(703)726-5826 www.comsearch.com

PCN Date: 08/25/2003

Job Number 030825COMSKD01

New Path

RCN Number: 03082512

Administrative Information		BLDG L	CA	MOBILE	CA
Status / License Basis		PROPOSED / PRIMARY OPERATION		PROPOSED / PRIMARY OPERATION	
Call Sign					
Licensee Code		QUAINC		QUAINC	
Licensee Name		QUALCOMM INCORPORATED		QUALCOMM INCORPORATED	
Radio Service / Station Class		MG -- Microwave Industrial/Business Pool		FXO -- Fixed	
Site Information					
Latitude (NAD 83)		32 ° 53' 30.7" N		32 ° 53' 41.0" N	
Longitude (NAD 83)		117 ° 11' 43.7" W		116 ° 45' 41.0" W	
Ground Elevation (m/ft-AMSL)		161.23 / 529.0		30.48 / 100.0	
Antenna Structure Registration #					
Path Azimuth (°)		89.435		269.670	
Path Length (km / miles)		40.617 / 25.238			
Transmit Antenna		03900K			
Manufacturer		SCALA ELECTRONICS			
Model		OGB3-900K			
Gain (dBi) / Beamwidth (°) / Tilt (°)		5.2 / 20.00 / -0.36			
Centerline (m / ft - AGL)		36.58 / 120.0			
Receive Antenna				S00000	
Manufacturer				SCALA ELECTRONICS	
Model				MF-960B	
Gain (dBi) / Beamwidth (°)				16.2 / 14.00	
Centerline (m / ft - AGL)				6.10 / 20.0	
Diversity Receive Antenna					
Manufacturer					
Model					
Gain (dBi) / Beamwidth (°)					
Centerline (m / ft - AGL)					
Radio Information		TEMB31		999999	
Manufacturer		INTERWAVE COMMUNICATIONS		RECEIVE	
Model		GSM BTS		ONLY	
Model Description					
Emission Designator / Modulation		270KGXW 16 QAM			
Loading		DIGITAL DIG 0.0		DIGITAL DIG 0.0	
Stability (%)		0.00015		0.00015	
		Nominal	Coordinated	Maximum	
Power (dBm)			38.5		
Received Level (dBm)					-81.1
EIRP (dBm)			28.0		
Fixed Loss: Tx / Common (dB)		15.0 / 0.7		0.0 / 1.0	
Free Space Loss (dB)				124.3	
Transmit Frequencies (MHz)		953.4000V(7)			

Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147

(703)726-5826 www.comsearch.com

PCN Date: 08/25/2003

Job Number 030825COMSKD01

New Path

RCN Number: 03082512

Administrative Information

BLDG E

CA

MOBILE

CA

Status / License Basis

PROPOSED / PRIMARY OPERATION

PROPOSED / PRIMARY OPERATION

Call Sign

Licensee Code

QUAINC

QUAINC

Licensee Name

QUALCOMM INCORPORATED

QUALCOMM INCORPORATED

Radio Service / Station Class

MG -- Microwave Industrial/Business Pool

FXO -- Fixed

Site Information

Latitude (NAD 83)

32 ° 52' 46.7" N

32 ° 53' 41.0" N

Longitude (NAD 83)

117 ° 12' 10.0" W

116 ° 45' 41.0" W

Ground Elevation (m/ft-AMSL)

149.04 / 489.0

30.48 / 100.0

Antenna Structure Registration #

Path Azimuth (°)

87.561

267.801

Path Length (km / miles)

41.336 / 25.685

Transmit Antenna

03900K

Manufacturer

SCALA ELECTRONICS

Model

OGB3-900K

Gain (dBi) / Beamwidth (°) / Tilt (°)

5.2 / 20.00 / -0.35

Centerline (m / ft - AGL)

36.58 / 120.0

Receive Antenna

S00000

Manufacturer

SCALA ELECTRONICS

Model

MF-960B

Gain (dBi) / Beamwidth (°)

16.2 / 14.00

Centerline (m / ft - AGL)

6.10 / 20.0

Diversity Receive Antenna

Manufacturer

Model

Gain (dBi) / Beamwidth (°)

Centerline (m / ft - AGL)

Radio Information

TEMB31

999999

Manufacturer

INTERWAVE COMMUNICATIONS

RECEIVE

Model

GSM BTS

ONLY

Model Description

Emission Designator / Modulation

270KGXW 16 QAM

Loading

DIGITAL DIG 0.0

DIGITAL DIG 0.0

Stability (%)

0.00015

0.00015

Nominal Coordinated Maximum

Nominal Coordinated Maximum

Power (dBm)

38.5

Received Level (dBm)

-86.2

EIRP (dBm)

23.0

Fixed Loss: Tx / Common (dB)

20.0 / 0.7

0.0 / 1.0

Free Space Loss (dB)

124.4

Transmit Frequencies (MHz)

958.0000V(4)

Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147

(703)726-5826 www.comsearch.com

PCN Date: 08/25/2003

Job Number 030825COMSKD01

New Path

RCN Number: 03082512

Administrative Information	BLDG E	CA	MOBILE	CA
Status / License Basis	PROPOSED / PRIMARY OPERATION		PROPOSED / PRIMARY OPERATION	
Call Sign				
Licensee Code	QUAINC		QUAINC	
Licensee Name	QUALCOMM INCORPORATED		QUALCOMM INCORPORATED	
Radio Service / Station Class	MG -- Microwave Industrial/Business Pool		FXO -- Fixed	

Site Information

Latitude (NAD 83)	32 ° 52' 46.7" N	32 ° 53' 41.0" N
Longitude (NAD 83)	117 ° 12' 10.0" W	116 ° 45' 41.0" W
Ground Elevation (m/ft-AMSL)	149.04 / 489.0	30.48 / 100.0
Antenna Structure Registration #		
Path Azimuth (°)	87.561	267.801
Path Length (km / miles)	41.336 / 25.685	

Transmit Antenna

Manufacturer	03900K
Model	SCALA ELECTRONICS
Gain (dBi) / Beamwidth (°) / Tilt (°)	OGB3-900K
Centerline (m / ft - AGL)	5.2 / 20.00 / -0.35
	36.58 / 120.0

Receive Antenna

Manufacturer	S00000
Model	SCALA ELECTRONICS
Gain (dBi) / Beamwidth (°)	MF-960B
Centerline (m / ft - AGL)	16.2 / 14.00
	6.10 / 20.0

Diversity Receive Antenna

Manufacturer	
Model	
Gain (dBi) / Beamwidth (°)	
Centerline (m / ft - AGL)	

Radio Information

Manufacturer	INTERWAVE COMMUNICATIONS			RECEIVE		
Model	GSM BTS			ONLY		
Model Description						
Emission Designator / Modulation	270KGXW	16 QAM				
Loading	DIGITAL DIG 0.0			DIGITAL DIG 0.0		
Stability (%)	0.00015			0.00015		
	Nominal	Coordinated	Maximum	Nominal	Coordinated	Maximum
Power (dBm)		38.5				
Received Level (dBm)					-96.2	
EIRP (dBm)		13.0				
Fixed Loss: Tx / Common (dB)	30.0 / 0.7			0.0 / 1.0		
Free Space Loss (dB)			124.4			

Transmit Frequencies (MHz)

959.2000V(3)

Microwave Path Data Sheet

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COMSEARCH

19700 Janelia Farm Boulevard, Ashburn, VA, 20147

(703)726-5826 www.comsearch.com

PCN Date: 08/25/2003

Job Number 030825COMSKD01

New Path

RCN Number: 03082512

Administrative Information	BLDG L	CA	MOBILE	CA
Status / License Basis	PROPOSED / PRIMARY OPERATION		PROPOSED / PRIMARY OPERATION	
Call Sign				
Licensee Code	QUAINC		QUAINC	
Licensee Name	QUALCOMM INCORPORATED		QUALCOMM INCORPORATED	
Radio Service / Station Class	MG -- Microwave Industrial/Business Pool		FXO -- Fixed	

Site Information

Latitude (NAD 83)	32 ° 53' 30.7" N	32 ° 53' 41.0" N
Longitude (NAD 83)	117 ° 11' 43.7" W	116 ° 45' 41.0" W
Ground Elevation (m/ft-AMSL)	161.23 / 529.0	30.48 / 100.0
Antenna Structure Registration #		
Path Azimuth (°)	89.435	269.670
Path Length (km / miles)	40.617 / 25.238	

Transmit Antenna

Manufacturer	03900K
Model	SCALA ELECTRONICS
Gain (dBi) / Beamwidth (°) / Tilt (°)	OGB3-900K
Centerline (m / ft - AGL)	5.2 / 20.00 / -0.36
	36.58 / 120.0

Receive Antenna

Manufacturer	S00000
Model	SCALA ELECTRONICS
Gain (dBi) / Beamwidth (°)	MF-960B
Centerline (m / ft - AGL)	16.2 / 14.00
	6.10 / 20.0

Diversity Receive Antenna

Manufacturer	
Model	
Gain (dBi) / Beamwidth (°)	
Centerline (m / ft - AGL)	

Radio Information

Manufacturer	TEMB31	999999
Model	INTERWAVE COMMUNICATIONS	RECEIVE
Model Description	GSM BTS	ONLY
Emission Designator / Modulation	270KGXW 16 QAM	
Loading	DIGITAL DIG 0.0	DIGITAL DIG 0.0
Stability (%)	0.00015	0.00015
	Nominal Coordinated Maximum	Nominal Coordinated Maximum
Power (dBm)	38.5	
Received Level (dBm)		-96.1
EIRP (dBm)	13.0	
Fixed Loss: Tx / Common (dB)	30.0 / 0.7	0.0 / 1.0
Free Space Loss (dB)		124.3

Transmit Frequencies (MHz) 959.2000V(3)