





QUETZSAT-1

ATTACHMENT B

Schedule S Data for QuetzSat-1 at 61.5° W.L.

											
Applicant	Satellite	Op. Band	GSO Orbit	NGSO Orbit	Service Area	Antenna Beam	Beam Diagram	Transponder	Modulation	Emission	Other

Applicant Information:

Name:	<input type="text" value="EchoStar Corporation"/>	Phone Number:	<input type="text" value="303-723-1000"/>				
Street:	<input type="text" value="100 Inverness Terrace East"/>	Fax Number:	<input type="text" value="303-723-1699"/>				
Street:	<input type="text"/>	E-mail:	<input type="text" value="Alison.Minea@echostar.com"/>				
City:	<input type="text" value="Englewood"/>	State:	<input type="text" value="CO"/>	Zipcode:	<input type="text" value="80112"/>	Attention:	<input type="text" value="Alison Minea (202) 293-0981"/>
Country:	<input type="text" value="USA"/>						

Note: Begin new data entry by first clicking "Add" button. Click "Save" button when finished.
Revise existing data by editing any data field. Click "Save" button when finished.

GENERAL NOTE: Several tables (Applicant, FCC Only, Satellite, GSO, NGSO Header, Electrical, and Physical) only allow one (1) data row each. All of these tables have "Add/Save/Delete" buttons that must be used to control data entry and storage. All other "Grid" tables allow multiple rows of data, each of which is "Saved" by moving the cursor into a different data row.

FCC Only:

Call Sign:	<input type="text"/>	
File Number (without dashes):	<input type="text"/>	(i.e. SATLOA2004013101234)
Date Filed:	<input type="text"/>	
Satellite Alias Name:	<input type="text"/>	
ITU Network Name:	<input type="text"/>	

Complete this information only if requested by FCC Staff with respect to a previously filed application.

Schedule_S - [Schedule S]

File Edit View Window Help

Applicant **Satellite** Op. Band GSO Orbit NGSO Orbit Service Area Antenna Beam Beam Diagram Transponder Modulation Emission Other

S1. General Information: Complete for all satellite applications.

a. Space Station or Satellite Network Name:	<input type="text" value="QUETZSAT-1"/>		g. Total No. of Transponders:	<input type="text" value="32"/>
	Estimated Date	Months after Authorization	h. Total Transponder Bandwidth (No. Transponders x Bandwidth):	<input type="text" value="768"/> MHz
b. Construction Commencement Date:	<input type="text" value="02/04/2009"/>	or <input type="text"/>	i. Will the space station(s) operate on a Common Carrier Basis? (Yes/No):	<input type="text" value="N"/>
c. Construction Completion Date:	<input type="text" value="07/12/2011"/>	or <input type="text"/>	j. Number of transponders offered on a Common Carrier basis:	<input type="text" value="0"/>
d1. Estimated Launch Date (Begin):	<input type="text" value="08/01/2011"/>	or <input type="text"/>	k. Total Common Carrier Transponder Bandwidth:	<input type="text" value="0"/> MHz
d2. Estimated Launch Date (End):	<input type="text" value="08/31/2011"/>	or <input type="text"/>		
e. Estimated Date of Placement into Service:	<input type="text" value="10/07/2011"/>	or <input type="text"/>	l. Orbit Type: Check all boxes that apply.	<input checked="" type="checkbox"/> GSO
f. Estimated Lifetime of Satellite(s):	<input type="text" value="15"/> Years			<input type="checkbox"/> NGSO

NOTE: All dates should be given in whatever format is set for "Short Date" in your "Control Panel" under "Regional & Language Options" or "Regional Settings". This is "MM/DD/YYYY" for "English (United States)" setting.

Schedule_S - [Schedule S]

File Edit View Window Help

Applicant | Satellite | Op. Band | GSO Orbit | NGSO Orbit | Service Area | Antenna Beam | Beam Diagram | Transponder | Modulation | Emission | Other

S2. OPERATING FREQUENCY BANDS
 For each frequency band in which the satellite will operate, provide:

	a. Lower Frequency Limit (numeric)	b. Unit (_Hz)*	c. Upper Frequency Limit (numeric)	d. Unit (_Hz)*	e. T/R Mode **	f. Nature of Service
▶	17300	M	17800	M	R	
	12200	M	12700	M	T	
*						

S2f. Nature of Service(s): To edit, click button in column "f" of table S2 (at

	Lower Frequency Limit (MHz)	Upper Frequency Limit (MHz)	T/R Mode	f. Nature of Service	Description
▶	17300	17800	R	FBSS	Feeder Link for Broadcasting Satellite Service in FS
	12200	12700	T	BSSV	Broadcasting Satellite Service - Video

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File Edit View Window Help

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S3. Orbital Information for Geostationary Satellites

Add Save Delete

a. Nominal Orbital Longitude: Degrees EW

Longitudinal Tolerance or EW Station-Keeping:

c. Toward West: Degrees

d. Toward East: Degrees

e. Inclination Excursion or N/S Station-Keeping Tolerance: Degrees

Range of orbital arc in which adequate service can be provided (Optional):

f. Westernmost: Degrees EW

g. Easternmost: Degrees EW

b. Reason for orbital location selection:
 Consistent with Region 2 USA Plan and existing EchoStar license.

h. Reason for service arc selection (Optional):
 Cluster range of Region 2 BSS Plan for the 61.5W nominal orbital slot is from 61.7W to 61.3W.

Schedule_S - [Schedule S]

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Applicant | Satellite | Op. Band | GSO Orbit | NGSO Orbit | **Service Area** | Antenna Beam | Beam Diagram | Transponder | Modulation | Emission | Other

S6. Service Area Characteristics
For each Service Area provide:

	a. Service Area ID	b. Type of Assoc. Station ('E'arth or 'S'pace)	c. Service Area Diagram File Name (GXT File)	d. Service Area Description, State Codes, ITU Codes, or Figure No.	Service Area Diagram File Name (Pdf File)
▶	CONUS	S		CONUS	
	GILBERT	S		Area around Gilbert, AZ	
	GLOBAL	S		Visible Earth	
*					

Schedule_S - [Schedule S]

File Edit View Window Help

Applicant | Satellite | Op. Band | GSO Orbit | NGSO Orbit | Service Area | Antenna Beam | Beam Diagram | Transponder | Modulation | Emission | Other

57. Space Station Antenna Beam Characteristics
For each Antenna Beam provide:

	a. Beam ID	b. T/R Mode	c. Peak Gain (dBi)	d. Edge Gain (dBi)	e. Pointing Error (Deg)	f. Rotational Error (Deg)	g. Min Cross-Polar Isolation (dB)	h. Polarization Switchable? (Y/N)	i. Polarization Alignment Rel. Equatorial Plane (Deg)	j. Service Area ID	k. Xmt Input Losses (dB)	l. Xmt Effective Output Power (W)	m. Xmt Max EIRP (dBW)	n. Rec System Noise Temp (K)	o. G/T at Max Gain Pt. (dB/K)	p. Min Saturation Flux Density (dBW/m2)	q. Attenuator Max Value (dB)	r. Attenuator Step Size (dB)
▶	RRG	R	44.7	41.7	0.12	0.2	27	N		GILBERT				1542	12.8	-105.6	21	1
	RLG	R	44.7	41.7	0.12	0.2	27	N		GILBERT				1774	12.2	-105	21	1
	TEL	T	35.3	25.3	0.12	0.2	28.2	N		CONUS	2.5	155	57.2					
	TER	T	35.2	25.2	0.12	0.2	28.2	N		CONUS	2.5	155	57.1					
	TwL	T	35	25	0.12	0.2	26	N		CONUS	2.5	155	56.9					
	TWR	T	34.8	24.8	0.12	0.2	26	N		CONUS	2.5	155	56.7					
	TCO	R	3	-2.5	0.12	0.2	30	Y		GLOBAL				4467	-33.5	-90		
	TMD	T	34.9	26.9	0.12	0.2	27	N		CONUS	7.6	0.1	24.4					
*																		

Schedule_S - [Schedule S]												
File Edit View Window Help												
Applicant Satellite Op. Band GSO Orbit NGSO Orbit Service Area Antenna Beam Beam Diagram Transponder Modulation Emission Other												
S8. ANTENNA BEAM DIAGRAMS												
For each beam pattern provide the reference to the graphic image and numerical data: Also provide the power flux density levels in each beam that result from the emission with the highest power flux density.												
	a. Beam ID	b. T/R Mode	c. Co- or Cross-Polar Mode (C or X)	d. GSO Ref. Orbital Longitude (deg E)	e. NGSO Antenna Gain Contour Description (Figure/Table/ Exhibit)	f. GSO Antenna Gain Contour Data (GXT format)	g. Max PFD @ 5 deg* (dBW/m2 per ref. Bandwidth)	h. Max PFD @ 10 deg* (dBW/m2 per ref. Bandwidth)	i. Max PFD @ 15 deg* (dBW/m2 per ref. Bandwidth)	j. Max PFD @ 20 deg* (dBW/m2 per ref. Bandwidth)	k. Max PFD @ 25 deg* (dBW/m2 per ref. Bandwidth)	l. PFD Ref. BandWidth (4kHz or 1MHz)
▶	RRG ▼	R	C	-61.5		RRG.gxt						
	RLG	R	C	-61.5		RLG.gxt						
	TEL	T	C	-61.5		TEL.gxt						
	TER	T	C	-61.5		TER.gxt						
	TWL	T	C	-61.5		TWL.gxt						
	TWR	T	C	-61.5		TWR.gxt						
	TMO	T	C	-61.5		TMO.gxt						
*												

S9. Space Station Channels							S10. Space Station Transponders					
a. Channel ID	b. Assigned Bandwidth (kHz)	c. T/R Mode	d. Center Frequency (MHz)	e. Polarization	f. TT&C or Comm Channel		a. Transponder ID	b. Transponder Gain (dB)	c. Receive Channel ID	d. Receive Beam ID	e. Transmit Channel ID	f. Transmit Beam ID
R01	24000	R	17324.0	R	C		CMDA		CMD1	TCO		
R02	24000	R	17338.58	L	C		CMDB		CMD2	TCO		
R03	24000	R	17353.16	R	C		TLMA				TLM1	TMO
R04	24000	R	17367.74	L	C		TLMB				TLM2	TMO
R05	24000	R	17382.32	R	C		TLMC				TLM3	TMO
R06	24000	R	17396.90	L	C		TLMD				TLM4	TMO
R07	24000	R	17411.48	R	C		G01	129.3	R01	RRG	T01	TER
R08	24000	R	17426.06	L	C		G02	128.7	R02	RLG	T02	TWL
R09	24000	R	17440.64	R	C		G03	129.3	R03	RRG	T03	TWR
R10	24000	R	17455.22	L	C		G04	128.7	R04	RLG	T04	TEL
R11	24000	R	17469.80	R	C		G05	129.3	R05	RRG	T05	TER
R12	24000	R	17484.38	L	C		G06	128.7	R06	RLG	T06	TWL
R13	24000	R	17498.96	R	C		G07	129.3	R07	RRG	T07	TWR
R14	24000	R	17513.54	L	C		G08	128.7	R08	RLG	T08	TEL
R15	24000	R	17528.12	R	C		G09	129.3	R09	RRG	T09	TER
R16	24000	R	17542.70	L	C		G10	128.7	R10	RLG	T10	TWL
R17	24000	R	17557.28	R	C		G11	129.3	R11	RRG	T11	TWR
R18	24000	R	17571.86	L	C		G12	128.7	R12	RLG	T12	TEL
R19	24000	R	17586.44	R	C		G13	129.3	R13	RRG	T13	TER
R20	24000	R	17601.02	L	C		G14	128.7	R14	RLG	T14	TWL
R21	24000	R	17615.60	R	C		G15	129.3	R15	RRG	T15	TWR
R22	24000	R	17630.18	L	C		G16	128.7	R16	RLG	T16	TEL
R23	24000	R	17644.76	R	C		G17	129.3	R17	RRG	T17	TER
R24	24000	R	17659.34	L	C		G18	128.7	R18	RLG	T18	TWL
R25	24000	R	17673.92	R	C		G19	129.3	R19	RRG	T19	TWR
R26	24000	R	17688.50	L	C		G20	128.7	R20	RLG	T20	TEL
R27	24000	R	17703.08	R	C		G21	129.3	R21	RRG	T21	TER
R28	24000	R	17717.66	L	C		G22	128.7	R22	RLG	T22	TWL
R29	24000	R	17732.24	R	C		G23	129.3	R23	RRG	T23	TWR

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Applicant | Satellite | Op. Band | GSO Orbit | NGSO Orbit | Service Area | Antenna Beam | Beam Diagram | **Transponder** | Modulation | Emission | Other

S9. Space Station Channels						S10. Space Station Transponders					
a. Channel ID	b. Assigned Bandwidth (kHz)	c. T/R Mode	d. Center Frequency (MHz)	e. Polarization	f. TT&C or Comm Channel	a. Transponder ID	b. Transponder Gain (dB)	c. Receive Channel ID	d. Receive Beam ID	e. Transmit Channel ID	f. Transmit Beam ID
R30	24000	R	17746.82	L	C	G06	128.7	R06	RLG	T06	TWL
R31	24000	R	17761.40	R	C	G07	129.3	R07	RRG	T07	TWR
R32	24000	R	17775.98	L	C	G08	128.7	R08	RLG	T08	TEL
T01	24000	T	12224.00	R	C	G09	129.3	R09	RRG	T09	TER
T02	24000	T	12238.58	L	C	G10	128.7	R10	RLG	T10	TWL
T03	24000	T	12253.16	R	C	G11	129.3	R11	RRG	T11	TWR
T04	24000	T	12267.74	L	C	G12	128.7	R12	RLG	T12	TEL
T05	24000	T	12282.32	R	C	G13	129.3	R13	RRG	T13	TER
T06	24000	T	12296.90	L	C	G14	128.7	R14	RLG	T14	TWL
T07	24000	T	12311.48	R	C	G15	129.3	R15	RRG	T15	TWR
T08	24000	T	12326.06	L	C	G16	128.7	R16	RLG	T16	TEL
T09	24000	T	12340.64	R	C	G17	129.3	R17	RRG	T17	TER
T10	24000	T	12355.22	L	C	G18	128.7	R18	RLG	T18	TWL
T11	24000	T	12369.80	R	C	G19	129.3	R19	RRG	T19	TWR
T12	24000	T	12384.38	L	C	G20	128.7	R20	RLG	T20	TEL
T13	24000	T	12398.96	R	C	G21	129.3	R21	RRG	T21	TER
T14	24000	T	12413.54	L	C	G22	128.7	R22	RLG	T22	TWL
T15	24000	T	12428.12	R	C	G23	129.3	R23	RRG	T23	TWR
T16	24000	T	12442.70	L	C	G24	128.7	R24	RLG	T24	TEL
T17	24000	T	12457.28	R	C	G25	129.3	R25	RRG	T25	TEL
T18	24000	T	12471.86	L	C	G26	128.7	R26	RLG	T26	TWL
T19	24000	T	12486.44	R	C	G27	129.3	R27	RRG	T27	TWR
T20	24000	T	12501.02	L	C	G28	128.7	R28	RLG	T28	TEL
T21	24000	T	12515.60	R	C	G29	129.3	R29	RRG	T29	TER
T22	24000	T	12530.18	L	C	G30	128.7	R30	RLG	T30	TWL
T23	24000	T	12544.76	R	C	G31	129.3	R31	RRG	T31	TWR
T24	24000	T	12559.34	L	C	G32	128.7	R32	RLG	T32	TEL
T25	24000	T	12573.92	R	C	*					
T26	24000	T	12588.50	L	C						

S9. Space Station Channels							S10. Space Station Transponders					
a. Channel ID	b. Assigned Bandwidth (kHz)	c. T/R Mode	d. Center Frequency (MHz)	e. Polarization	f. TT&C or Comm Channel		a. Transponder ID	b. Transponder Gain (dB)	c. Receive Channel ID	d. Receive Beam ID	e. Transmit Channel ID	f. Transmit Beam ID
T12	24000	T	12384.38	L	C		G06	128.7	R06	RLG	T06	TWL
T13	24000	T	12398.96	R	C		G07	129.3	R07	RRG	T07	TWR
T14	24000	T	12413.54	L	C		G08	128.7	R08	RLG	T08	TEL
T15	24000	T	12428.12	R	C		G09	129.3	R09	RRG	T09	TER
T16	24000	T	12442.70	L	C		G10	128.7	R10	RLG	T10	TWL
T17	24000	T	12457.28	R	C		G11	129.3	R11	RRG	T11	TWR
T18	24000	T	12471.86	L	C		G12	128.7	R12	RLG	T12	TEL
T19	24000	T	12486.44	R	C		G13	129.3	R13	RRG	T13	TER
T20	24000	T	12501.02	L	C		G14	128.7	R14	RLG	T14	TWL
T21	24000	T	12515.60	R	C		G15	129.3	R15	RRG	T15	TWR
T22	24000	T	12530.18	L	C		G16	128.7	R16	RLG	T16	TEL
T23	24000	T	12544.76	R	C		G17	129.3	R17	RRG	T17	TER
T24	24000	T	12559.34	L	C		G18	128.7	R18	RLG	T18	TWL
T25	24000	T	12573.92	R	C		G19	129.3	R19	RRG	T19	TWR
T26	24000	T	12588.50	L	C		G20	128.7	R20	RLG	T20	TEL
T27	24000	T	12603.08	R	C		G21	129.3	R21	RRG	T21	TER
T28	24000	T	12617.66	L	C		G22	128.7	R22	RLG	T22	TWL
T29	24000	T	12632.24	R	C		G23	129.3	R23	RRG	T23	TWR
T30	24000	T	12646.82	L	C		G24	128.7	R24	RLG	T24	TEL
T31	24000	T	12661.40	R	C		G25	129.3	R25	RRG	T25	TEL
T32	24000	T	12675.98	L	C		G26	128.7	R26	RLG	T26	TWL
CMD1	1000	R	17797.0	R	T		G27	129.3	R27	RRG	T27	TWR
CMD2	1000	R	17793.0	R	T		G28	128.7	R28	RLG	T28	TEL
TLM1	500	T	12694.5	R	T		G29	129.3	R29	RRG	T29	TER
TLM2	500	T	12698.5	R	T		G30	128.7	R30	RLG	T30	TWL
TLM3	500	T	12692	R	T		G31	129.3	R31	RRG	T31	TWR
TLM4	500	T	12693	R	T		G32	128.7	R32	RLG	T32	TEL
*							*					

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Applicant Satellite Op. Band GSO Orbit NGSO Orbit Service Area Antenna Beam Beam Diagram Transponder Modulation Emission Other														
S11. Digital Modulation Parameters														
a. Digital Mod. ID	b. Emission Designator	c. Assigned Bandwidth (kHz)	d. No. of Phases	e. Uncoded Data Rate (kbps)	f. FEC Error Correction Coding Rate	g. CDMA Processing Gain (dB)	h. Total C/N Performance Objective (dB)	i. Single Entry C/I Objective (dB)						
▶ D1	25M8G7W	25800	8	41209	0.6406	0	7.5	28						
D2	25M8G7W	25800	8	46360	0.7207	0	8.3	28						
D3	24M0G7W	24000	4	32255	0.8408	0	6.5	28						
*														
S12. Analog Modulation Parameters														
a. Analog Mod. ID	b. Emission Designator	c. Assigned Bandwidth (kHz)	d. Signal Type	e. Channels per Carrier	f. Ave. Companded Talker Level (dBm0)	g. Telephony Bottom Baseband Freq (MHz)	h. Telephony & SCPC/FM Top Baseband Freq (MHz)	i. Telephony RMS Modulation Index	j. Video Standard (NTSC, PAL, etc.)	k. Video Noise Weighting (dB)	l. Video & SCPC/FM Modulation Index	m. SCPC/FM Compander, Pre-emphasis, & Noise Weighting (dB)	n. Total C/N Performance Objective (dB)	o. Single Entry C/I Objective (dB)
▶ CMD	1M00F2D	1000		1									10	22
TLM	500KF2D	500		1									10	22
*														

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Applicant	Satellite	Op. Band	GSO Orbit	NGSO Orbit	Service Area	Antenna Beam	Beam Diagram	Transponder	Modulation	Emission	Other					
S13. TYPICAL EMISSIONS																
For each planned type of emission provide:																
	a. Assoc. Transponder ID (Start)	b. Assoc. Transponder ID (End)	c. Digital Mod. ID	d. Analog Mod. ID	e. Carriers per Transponder	f. Carrier Spacing (kHz)	g. Noise Budget Reference	h. Dispersal Bandwidth (kHz)	i. Assoc. XMT Stn Max Antenna Gain (dBi)	j. Assoc. Stn Min. XMT Power (dBW)	k. Assoc. Stn Max. XMT Power (dBW)	l. Min. EIRP (dBW)	m. Max. EIRP (dBW)	n. Max. PFD (dBW/m2)	o. PFD Ref. BndWdth (4kHz or 1MHz)	p. Assoc. Stn Rec. G/T (dB/K)
	G01	G32	D1		1		LB1.docx		65.8	5	18.2	50.7	57.2			13.2
	G01	G32	D2		1		LB2.docx		65.8	5	18.2	50.7	57.2			13.2
	G01	G32	D3		1		LB3.docx		65.8	5	18.2	50.7	57.2			13.2
	▶ CMDA	CMDB		CMD	1		CMD LB.docx		64	19	37					-33.5
	TLMA	TLMD		TLM	1		TLM LB.docx					10.5	24.4			38.1
	*															

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S14. TT&C Station Locations

Is the space station(s) controlled and monitored remotely?

Complete Satellite Tab before responding to Yes/No Question S14.

	a1. Street1 Address	a2. Street2 Address	b. City	c. County	d1. State	d2. Country	e. Zip Code	f. Telephone No.	g. Call Sign of Control Station
▶ Primary	Jaime Balmes #11, Torre I		Mexico City		DF	MEX	11510	52-55-5093-9615	
Additional Facility	801 North DISH Dr		Gilbert	Maricopa Coun	AZ	USA	85233	480-558-2778	
Secondary	5990 Solano Verde Dr		Somis	Ventura County	CA	USA	93066	805-386-2710	
*									

S15. SPACECRAFT PHYSICAL CHARACTERISTICS

Spacecraft Dimensions - Deployed on-orbit (meters) Probability of Survival to End of Life (0-1)

a. Mass of spacecraft w/o fuel: kg

b. Mass of fuel & disposables at launch: kg

c. Mass of spacecraft & fuel at launch: kg

d. Mass of fuel, in orbit, at BOL: kg

e. Deployed area of Solar Array: sq. meters

f. Length: m

g. Width: m

h. Height: m

i. Payload:

j. Bus:

k. Total:

S16. SPACECRAFT ELECTRICAL CHARACTERISTICS

Spacecraft Subsystem	Electrical Power (Watts) @ BOL		Electrical Power (Watts) @ EOL	
	@ Equinox	@ Solstice	@ Equinox	@ Solstice
Payload (Watts): a.	<input type="text" value="13853"/>	f. <input type="text" value="13853"/>	k. <input type="text" value="13853"/>	p. <input type="text" value="13853"/>
Bus (Watts): b.	<input type="text" value="3265"/>	g. <input type="text" value="1730"/>	l. <input type="text" value="3265"/>	q. <input type="text" value="1730"/>
Total (Watts): c.	<input type="text" value="17118"/>	h. <input type="text" value="15583"/>	m. <input type="text" value="17118"/>	r. <input type="text" value="15583"/>
Solar Array (Watts): d.	<input type="text" value="21209"/>	i. <input type="text" value="19010"/>	n. <input type="text" value="19079"/>	s. <input type="text" value="17286"/>
Depth of Battery Discharge (%): e.	<input type="text" value="69.2"/>	j. <input type="text" value="69.2"/>	o. <input type="text" value="69.2"/>	t. <input type="text" value="69.2"/>

S17. CERTIFICATIONS

Complete Satellite Tab before responding to S17 Certifications.

a. Are the power flux density limits of & 25.208 met?

b. Are the appropriate service area coverage requirements of & 25.143(b)(ii) and (iii), or & 25.145(c)(1) and (2) met?

c. Are the frequency tolerances of & 25.202(e) and the out-of-band emission limits of & 25.202(f)(1), (2), and (3) met?