Appendix A: Specifications

This section contains the specifications for the DDS200 Digital Demodulation System. All specifications are guaranteed unless labeled “typical.” Typical specifications are provided for your convenience and are not guaranteed. Specifications labeled with the ✓ symbol are checked in the Performance Test (PT) procedure in the service manual.

***NOTE**. Performance requirements are valid provided that the instruments are operating within environmental parameters and have warmed up for at least one hour.*

Table A–1: Electrical Specifications

Characteristics	Requirements	Supplemental information
Overvoltage category		CAT II
RF Input		Connector: front-panel female type BNC
✓ Frequency range	47 to 862 MHz	
Level	100 µV to 700 mV	
Accuracy, typical	± 3 dB	
Impedance, typical	75 Ω	
✓ Return loss	≧ 12 dB	
Channel bandwidth, typical	8 MHz	
IF Input		
Level, typical	10 to 100 mV (80 to 100 dBuV)	
Impedance, typical	50 Ω	
✓ Return loss (33 to 40 MHz)	≧ 20 dB	
IF Output		
Level, typical	45 mV (93 dBuV)	
Impedance, typical	50 Ω	
Frequency, typical	36 MHz	
Demodulator		
✓ Modulation modes[1]	4, 16, 32, 64, 128, 256 QAM	
Pulse response roll-off factors	0.15, 0.20, 0.25, 0.30	

1 **Operation at 4, 128, and 256 QAM is not specified.**

Table A–1: Electrical Specifications (cont.)

Characteristics	Requirements	Supplemental information
Insertion loss (64 QAM)	≦ 1.5 dB	
Symbol rate, typical	1.5 to 7.0 MBaud	When setting the symbol rate value, the accuracy should be to three decimal places
✓ Symbol rate	6.9 MBaud	
Equalizer		Self adapting, selectable with freeze mode
Reed-Solomon decoder	204, 188 byte	t=8, selectable
Bit error rate display range	10^{-3} to 10^{-10}	
Interleaving		Forney, L=12
Energy dispersal		IESS 309 to DVB specification
Internal Noise Generator (Option B5)		
Signal/Noise ratio, typical	12 to 62 dB	
Resolution	0.1 dB	
Filter selection		Automatic conversion and correct setting of S/N ratio based on selected filter.
Outputs		
Parallel MPEG2 transport stream		Connector: rear-panel 25-pin
Standard		LVDS (188 or 204 bytes), DVB-A010
Source impedance, typical	100 Ω	
DC component, typical	1.25 V	
Signal amplitude, typical	247 mV to 454 mV	
Transmission link length (Max)		Approximately 5 meters
Serial MPEG2 transport stream		Connector: rear-panel female type BNC
Standard		ASI
Source impedance, typical	75 Ω	
DC component, typical	0 V	
Signal amplitude, typical	0.9 V_{p-p}	
Transmission rate, typical	270 Mbit/s	Fixed
QAM serial data (before Reed-Solomon)		Connector: rear-panel female type BNC
Source impedance, typical	75 Ω	
QAM serial clock output		Connector: rear-panel female type BNC
Source impedance, typical	75 Ω	

Table A–1: Electrical Specifications (cont.)

Characteristics	Requirements	Supplemental information
Measurement Displays		
Graphic		
Constellation display		
Calculated		
Bit error rate (BER)		
Frequency offset		
Level		
I/Q phase error		In degrees
I/Q amplitude imbalance		As a percentage
Carrier suppression		
Residual carrier		In dB
Sinusoidal interference (C/I)		In dB
Signal/noise ratio (SNR)		In dB
Phase jitter		In degrees
Modulation error ratio (MER)		As RMS or peak value
Synchronization Information		
Symbol rate		
Carrier recovery		
Equalizer		
MPEG2 frame		

Table A–2: Certifications and compliances

EC Declaration of Conformity – EMC	Meets intent of Directive 89/336/EEC for Electromagnetic Compatibility. Compliance was demonstrated to the following specifications as listed in the Official Journal of the European Communities: EN 55011 Class A Radiated and Conducted Emissions EN 55011 Class B Radiated and Conducted Emissions EN 50081-1 Emissions: EN 55022 Class B Radiated and Conducted Emissions EN 60555-2 AC Power Line Harmonic Emissions EN 50082-1 Immunity: IEC 801-2 Electrostatic Discharge Immunity IEC 801-3 RF Electromagnetic Field Immunity IEC 801-4 Electrical Fast Transient/Burst Immunity IEC 801-5 Power Line Surge Immunity
EMC Compliance	Meets the intent of Directive 89/336/EEC—Amended by 91/263/EEC, 92/31/EEC, 93/68/EEC— for Electromagnetic Compatibility when it is used with the product(s) stated in the specifications table. Refer to the EMC specification published for the stated products. May not meet the intent of the Directive if used with other products.
FCC Compliance	Emissions comply with FCC Code of Federal Regulations 47, Part 15, Subpart B, Class A Limits
EC Declaration of Conformity – Low Voltage	Compliance was demonstrated to the following specification as listed in the Official Journal of the European Communities: Low Voltage Directive 73/23/EEC, Amended by 93/68/EEC EN 61010-1:1993 Safety requirements for electrical equipment for measurement, control, and laboratory use
Approvals	UL3111-1 – Standard for electrical measuring and test equipment CAN/CSA C22.2 No. 1010.1 – Safety requirements for electrical equipment for measurement, control and laboratory use
Installation Category Descriptions	Terminals on this product may have different installation category designations. The installation categories are: CAT III Distribution-level mains (usually permanently connected). Equipment at this level is typically in a fixed industrial location CAT II Local-level mains (wall sockets). Equipment at this level includes appliances, portable tools, and similar products. Equipment is usually cord-connected CAT I Secondary (signal level) or battery operated circuits of electronic equipment

Table A–3: Power Characteristics

Characteristic	Description
Line Voltage (automatic selection)	85 to 132 VAC 187 to 264 VAC
Line Frequency	50 to 60 Hz
Power Consumption	< 100 VA

Table A–4: Environmental Characteristics

Characteristic	Description
Operating temperature range	0° C to +50° C
Rated temperature range	+5° C to +45° C
Storage temperature range	-40° C to +70° C

Table A–5: Physical Characteristics

Dimension	mm	in
Height	147	5.8
Width	450	17.7
Depth	460	18.1
Weight	**kg**	**lb**
Net	12	26.5