3. TECHNICAL MARKETING INFORMATION about the DP120USB and Medio S002.

DP120USB

Northern Apex Read/Write Device

The Desk Pro Series:

- USB enabled for easy connection
- **USB port powered eliminating need for separate power supply**
- Most popular unit due to its multi-functional size/usage
- Used as either a handheld or workstation read/write device
- Fits conveniently in a briefcase/carry case for portability
- Includes antenna and RFID coupler operating at 13.56MHz frequency reading all ISO15693 tags
- Typically used with portable data collection or PC / laptop / notebook devices
- Universal communication to Tagsys, TI, and Phillips tags as well as all ISO 15693 brands
- 7" X 3" X ¾"

Northern Apex produces a series of standard RFID communication devices specifically to meet the application requirements customers face when integrating RFID solutions. Each RFID communication device series was designed to offer the flexibility to meet the specific requirements of your application. Whether the RFID solution is industrial, portable, desktop or a combination of several needs, the Apex series was designed to provide off the shelf ready to go communication tools. If customization is required, our talented staff can tailor your hardware to the specifications required.

MEDIO S001 & MEDIO S002
SHORT RANGE UNIVERSAL COUPLERS
TO READ/WRITE MOST RFID CHIPS ON THE MARKET

Technical Specifications :

	Medio S001	Medio S002
Chip Compatibility	TAGSYS C210, C220, C240 I-Code™, Tag-It™	ISO 15693 chips TAGSYS C210, C220, C240 I-Code™, Tag-It™
Reading /Writing Distance*	Up to 15 cm (6 inches)	Up to 16 cm (6.5 inches)
RF Power	Up to 200 mW	Up to 220 mW
Power Supply	4 to 6 V	
Power Consumption	150 mA max under 5V 100µA in hardware standby mode	155 mA max under 5V 50µA in hardware standby mode
Communication Interface	TTL / RS 232	TTL / RS232 / RS485 / RS422
Communication Speed	Up to 38.4 Kbits / s	
Input/Output	4 I/O ports independently configurable	
Updateable Software	No	Yes
Certification	CE	
	EN 300-330, ETS 300-683 European Radio	
	Japanese ARIB T60 Radio Standard	
Antenna Compatibility**	Any 50 ohms antenna including TAGSYS Medio A-VSA, Aero LF, Medio A-SA, Medio A-SF, Medio A-MA, Medio A-MP	
Operating temperature	0°/+55°C (+32°/+131°F)	
Storage temperature	-20°/+70°C (-4°/+158°C)	
Weight	7 grams	
Size (LxWxH)	30 x 40 x 20 mm (1.2 x 1.6 x 0.8 inches)	
Mechanical interface	Mechanical fixation with 2 screws	

3. EQUIPMENT AND CABLE ARRANGEMENT

The table below lists the EUT, auxiliary equipment, and the type of interconnecting cables used.

Table 1. Information about the EUT, support equipment, and cabling.

Setup Diagram Legend	Description	Model	Serial No. / Part No.	EMC Consideration
EQUIPMENT				
A	PS/2 mouse	MICROSOFT Intellimouse model 1.1A	S/N 01929284	FCC & CE logos
B	Keyboard	ZDS model SK-2000RE	S/N 5BSDDC000002	FCC & CE logos FCC ID: GYUR10SK
C	PC Tower	Gateway 200MHz PC	S/N 10378	FCC & CE logos
D	**[EUT]** RFID transœiver	DP120USB	Proto AHD43	Plastic chassis
E	RFID tag	N/A	N/A	Required to allow for continuous running of transceiver.
F	Monitor	Acer model 70330	S/N 330225935P1	FCC & CE logos FCC ID: JVP70330A
CABLES				
1	Monitor AC cord	Auxiliary equipment	N/A	1.5 meters, Unshielded. Connected to a-c outlet in screen room for conducted emissions testing.
2	PC Tower AC cord	Auxiliary equipment	N/A	1.5 meters, Unshielded Connected to LISN during conducted emissions testing.
3	Video I/O cable	Auxiliary equipment	N/A	**2 meters, Permanently connected to monitor. Braided shield. One ferrite core molded into jacket. Bundled.**
4	USB physical connection to PC.	Permanent part of EUT	N/A	Shielded, 1.5 m long. One turn of cable goes through ferrite bead
5	Mouse I/O cable	Auxiliary equipment	N/A	Shielded cable. *Conducted emission test*, this is draped over table, bundled to 40 cm above ground plane *Radiated emission test*: on top of table
6	Keyboard I/O cable	Auxiliary equipment	N/A	1.5 meter, Permanently connected to keyboard. Shielded.

The setup diagram associated with this table follows, illustrating the typical application placement of the EUT and setup requirements of ANSI C63.4 – 2003 Section 6. In application, the EUT will not be oriented in any other fashion.

Diagram showing the equipment positioning and cable arrangement.

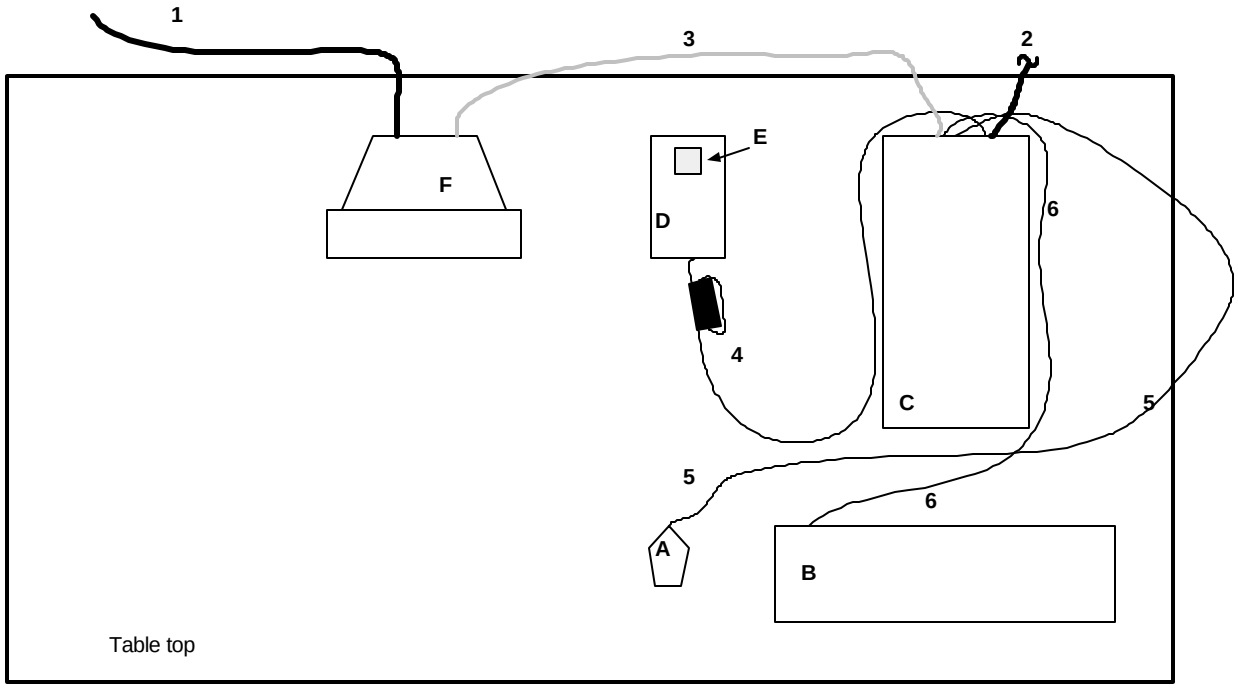

Figure 6. Basic EUT Setup
(Legend designation is on previous page)

Figure 7. Line Conducted—Front View

Figure 8. Line Conducted—Rear View.

Figure 9. Radiated—Rear View

The rear view of the radiated test setup show the arrangement of highest emissions. Note that the USB cable is routed toward the edge of the table, rather than next to the PC as in the conducted emissions setup. This setup was used for all radiated emissions (E and H-fields).

Figure 10. Radiated—Front View

The table was also rotated 360° until maximum emissions were recorded. For measurements = 30 MHz (H-field), the loop antenna was also rotated about its vertical axis to in an effort to detect higher emission levels while being maintained 1 meter above ground.

The highest emissions detected occurred with the loop antenna at 0 deg. azimuth and the plane of the table top perpendicular to the plane of the loop antenna.

For E-field measurements, maximum spurious field strengths were determined at each frequency by rotating the table and raising the antenna height.

4. LIST OF TEST EQUIPMENT

Tabulated Information

Table 2. Test equipment details

Equipment	Model	S/N	Last Calibration Date	Calibration Interval
HP EMI Receiver system	**HP 8546A**			
RF Filter Section	**HP-85460A**	**3448A00283**	**21-June-07**	**12 months**
RF Receiver Section	**HP-85462A**	**3625A00342**	**21-June-07**	**12 months**
EMCO BiconiLog Antenna	**3142**	**1077**	**30-Aug-07**	**12 months**
EMCO active loop antenna	**6502**	**2148**	**01-Sept-06**	**36 months**
Solar LISN	**8012-50-R-24-BNC**	**962137**	**30-Aug-07**	**12 months**
Solar LISN	**8012-50-R-24-BNC**	**962138**	**30-Aug-07**	**12 months**
LCI) Double shielded 50? Coax	**RG58/U**	**920809**	**23-Feb-07**	**12 months**
(3-m) LMR-400 Ultra Flex	**LMR400**	**9812-11**	**08-May-07**	**6 months**
(3-m) CS-3227 RG8	**CS-3227**	**C060914**	**08-May-07**	**6 months**
10-m) Amelco 50ohm Coax	**RG213U**	**9903-10ab**	**08-May-07**	**6 months**