

Advanced MRT Data Recovery Training Curriculum

	Time	Curriculum	Program Detail
Day 1	A.M.	Western Digital Data Recovery	<ol style="list-style-type: none"> 1. The course overview based on the MRT data recovery. MRT new product presentation. 2. WD Start-up Procedures 3. ROM Structure <ul style="list-style-type: none"> - ROM Module Directory - 30 Module - 0A Module (Head Bitmap) - 47 Module (Adaptation Parameters)
Day 1	P.M.	Western Digital Data Recovery	<ol style="list-style-type: none"> 1. WD Important Firmware Analysis <ul style="list-style-type: none"> - 01 Module. Module Offset Principle - 35 Module (SA Defect Table) - 02 Module (Configuration Information) - 40 Module (Adaptation Module) - 2D, 2E, The use of log module 2. ARCO and Data Recovery 3. The use of static module 4. The analysis and solutions of ROM malfunction <ul style="list-style-type: none"> - Flash microcode loading error - Disc structure configuration error - Servo data loading errors - Loading error of reading and writing subsystem - SA Compiler loading error 5. Analysis of SA Malfunction <ul style="list-style-type: none"> - Loading microcode error - Compiler Error & Zone table loading error - Analysis of ATA BUSY malfunction

	Time	Curriculum	Program Detail
Day 2	A.M.	Seagate Data Recovery	<ol style="list-style-type: none"> 1. Seagate ROM Structure <ul style="list-style-type: none"> - Servo subsystem - Reading and writing subsystem - SAP / RAP / CAP 2. Seagate Firmware Analysis <ul style="list-style-type: none"> - Main Firmware - P-List Module - SMART Module - 2B Module (compiler) - Main disk body microcode - Other Modules
Day 2	P.M.	Seagate Data Recovery	<ol style="list-style-type: none"> 1. Analysis of SA Structure <ul style="list-style-type: none"> - Distribution of SA and users area track - ABA address conversion - The distribution of firmware module in SA track 2. Treatment Scheme of ROM/PCB FAQ <ul style="list-style-type: none"> - SAP adaptation problem of replacing head - RAP and Zone table 3. Treatment Scheme of Disk Body SA FAQ <ul style="list-style-type: none"> - Repair of P-List Disorder - Various LED problems - Seagate short connection method - Repair of SMART Init Error and other common troubles 4. Detailed analysis of the trouble of good in front and bad at behind 5. Detailed analysis of MRT Seagate firmware update

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Day 3	A.M.	Seagate Practice Course	<ol style="list-style-type: none"> 1. Seagate practical operation 2. Real case analysis 3. Seagate common techniques 4. Example of Seagate F3 hot swap
Day 3	P.M.	Detailed analysis of opening HDD	<ol style="list-style-type: none"> 1. Method of HDD head replacement 2. Method of HDD body replacement 3. Techniques of opening HDD to replace head 4. Detailed using of HDD opening tool



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Day 4	A.M.	Hitachi Data Recovery	<ol style="list-style-type: none"> 1. Explanation of Hitachi HDD NV-RAM structure <ul style="list-style-type: none"> - Start identification - Head bitmap - Adaptation parameters, calibration - Entry address of SA, Entry address of user area 2. Explanation of Hitachi HDD key modules <ul style="list-style-type: none"> - CHNL, CNS1, ZONE - Micro Module, PSHT, RDMT 3. SA overall offset <ul style="list-style-type: none"> - Solution of writing cache disable - Techniques of writing module 4. Techniques of Hitachi hot swap <ul style="list-style-type: none"> - Techniques of hot swap 5. Recovery of Hitachi malfunction of good in front and bad at behind
Day 4	P.M.	Samsung, Toshiba, DE Module	<ol style="list-style-type: none"> 1. Toshiba HDD data recovery <ul style="list-style-type: none"> - Structure of Toshiba firmware - Tracks and CP - Analysis of Toshiba common troubles - Recovery of damaged G-List - Operation of shielding bad tracks and shielding bad heads of Toshiba 2. Detailed explanation of Samsung HDD data recovery 3. Detailed explanation of DE module practical skills

	Time	Curriculum	Program Detail
Day 5	All Day	HDD data recovery practice course (optional)	Participants can bring their own HDD to the class to demonstrate.

