

Case History - 17: Using Online Ultrasonic Method

Equipment under Measurement: **11kV AIS, Merlin Gerin**

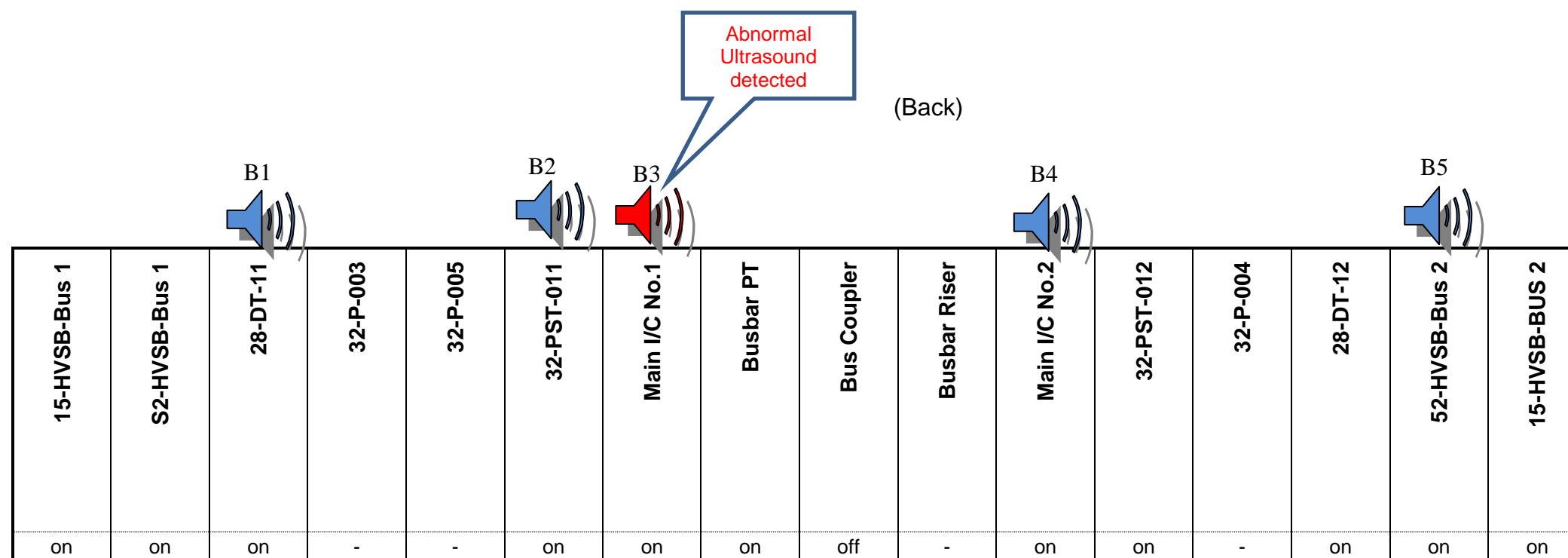
Date of Measurement: **25th September 2015**

Sensor Used: **Airborne Ultrasonic sensor**

Observation: **Bad Signs of Partial Discharge in 11kV Incomer 1 Yellow Phase Surge Arrester.**

ONLINE PD MEASUREMENT USING SNAPSHOT ULTRASONIC SENSORS FOR 11kV AIS @ HT SWITCHROOM

Client : A	Identification : -	Type : AIS	Substation location: 11kV Main Substation
Measurement Date : 25th September 2015	Sensor Used: Airborne Ultrasonic sensor	Serial No: -	Rated (kV): 12 kV
Measured By : Lee Ah Khaw	Measurement type: Snapshot	Manufacturer /Year: Merlin Gerin	Operating Voltage (kV) : 11 kV
			Air-con : Yes



(Front)

ULTRASOUND ACCESS POINT :	
Back side of Switchgear	<input type="checkbox"/> Louver <input type="checkbox"/> Screw Opening <input checked="" type="checkbox"/> Gap in between Panels <input type="checkbox"/> Others
Front side of Switchgear	<input type="checkbox"/> Louver <input type="checkbox"/> Screw Opening <input checked="" type="checkbox"/> Gap in between Panels <input type="checkbox"/> Others
ON-SITE AUDIO MEASUREMENT DETAILS :	
Background Ultrasonic Scan	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Abnormal Source Detected (Background)	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If Yes, _____
Component Ultrasonic Scan	<input checked="" type="checkbox"/> Cable termination <input type="checkbox"/> Circuit Breaker <input type="checkbox"/> VT <input type="checkbox"/> Bus Bar <input checked="" type="checkbox"/> Others
Abnormal Source Detected (Component)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No If Yes, At the Back panel of Circuit "Main I/C No.1"
LEGEND :	
	Ultrasonud at the back of Switchgear

COMPARISON OF ONLINE PD MEASUREMENT (BEFORE AND AFTER REMOVING THE SURGE ARRESTER) USING SNAPSHOT ULTRASONIC SENSORS

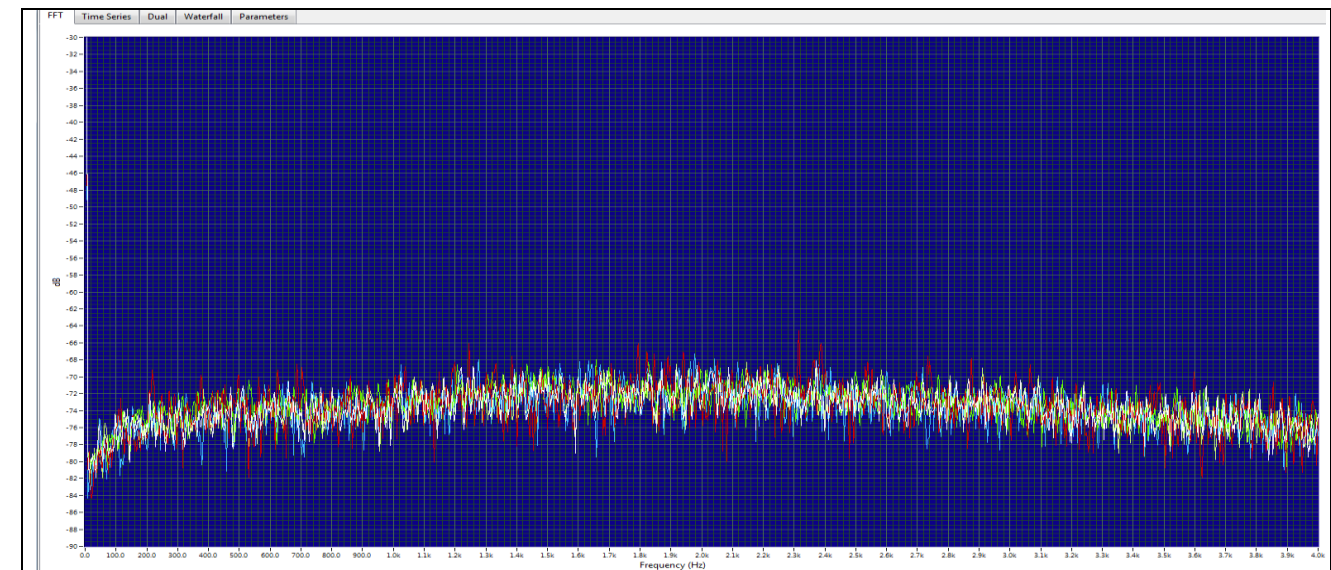
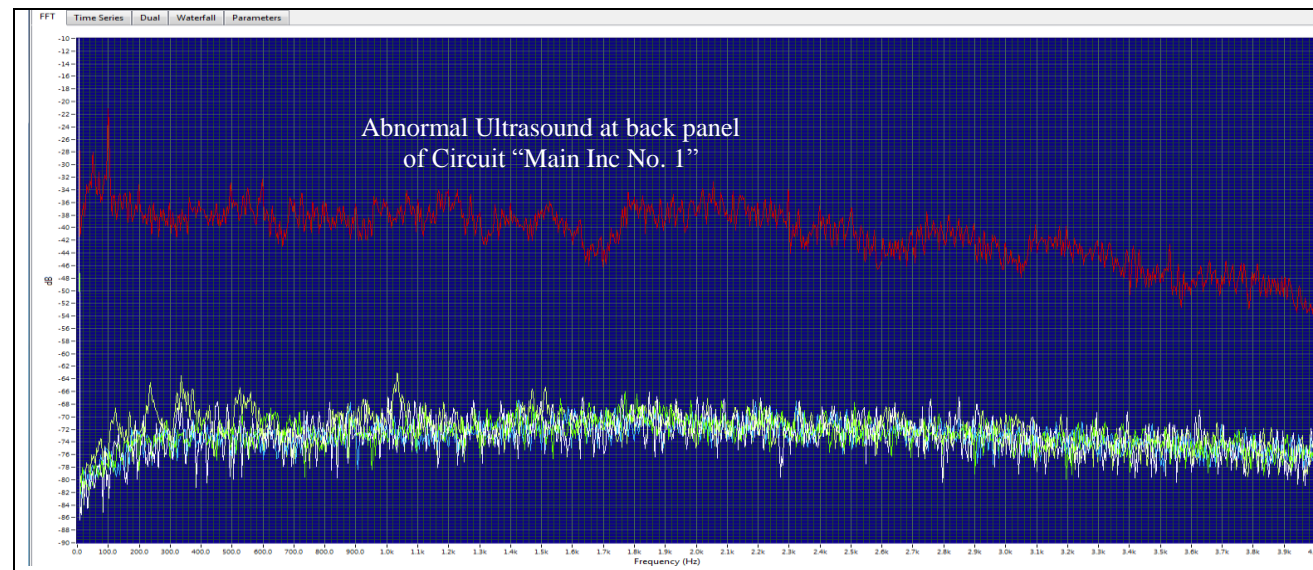
Client :	A	Identification :	-	Type :	AIS	Substation location:	11kV Main Substation
Measurement Date :	25 th & 26 th September 2015	Sensor Used:	Airborne Ultrasonic sensor	Serial No:	-	Rated (kV):	12 kV
Measured By :	Murugesan	Measurement type:	Snapshot	Manufacturer /Year:	Merlin Gerin	Operating Voltage (kV) :	11 kV
						Air-con :	Yes

Before removing the Surge Arrester _ Measured on 25 Sept 2015)

After removing the Surge Arrester _ Measured on 26 Sept 2015

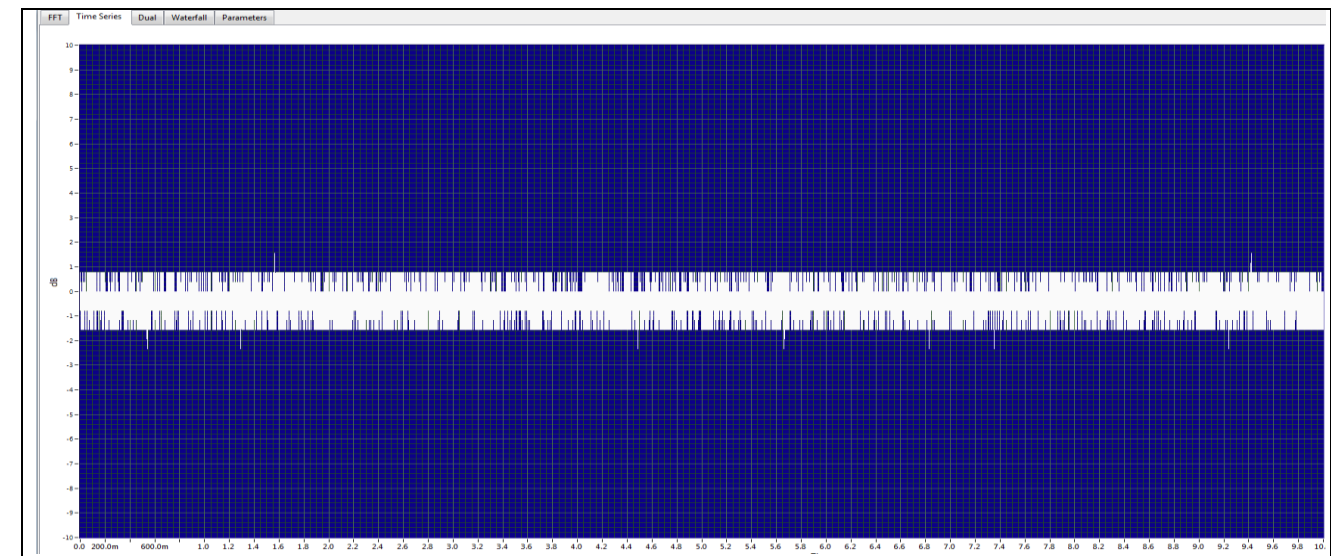
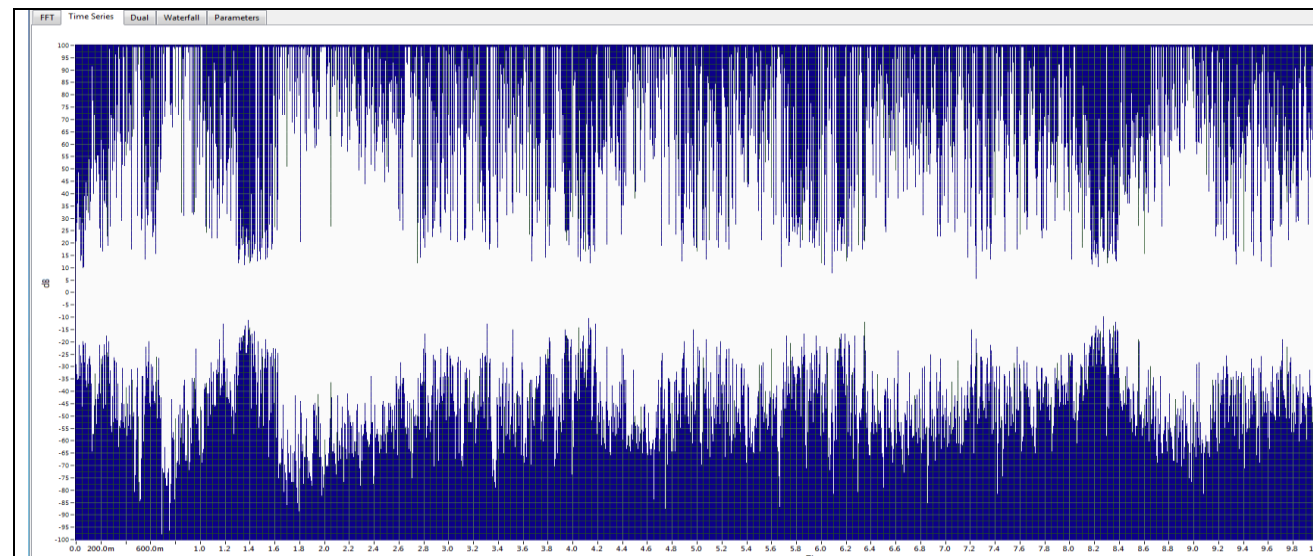
• **Frequency Domain Analysis**

• **Frequency Domain Analysis**



• **Time Domain Analysis (Back Panel of Circuit "Main Inc. No.1")**

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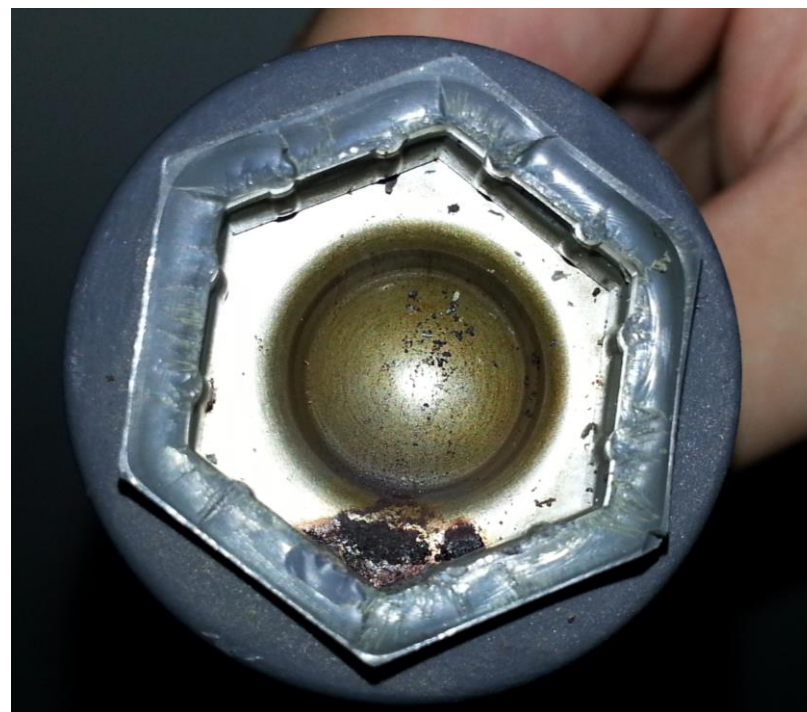


• Audio Analysis => **High level abnormal ultrasound was detected at the back panel of Circuit "Main Inc. No.1"**

• Audio Analysis => **No Abnormal ultrasound was detected.**

* Removing the surge arrester was done on 26th September 2015.

OBSERVATION DURING SHUTDOWN MAINTENANCE



Bad partial discharge signs on 11kV incomer 1 yellow phase surge arrester.

** Removing the surge arrester was done on 26th September 2015.*