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सम्मिश्र जांच दल/ Composite Trials Team
द्वारा नेवी कार्यालय/ C/o Navy Office
मुख्यालय/ Headquarters
अन्डमान एवं निकोबार कमान/
Andaman & Nicobar Command
पोर्ट ब्लेयर/ Port Blair - 744 102

CTT/300/11/02

24 Jan 23

The Commander-in-Chief
{for CTO (ML)}
Headquarters
Andaman & Nicobar Command
Port Blair - 744 102

CHECKS OF TRANSRECTIFIERS – INS CHETLAT

1. Refer to HQANC fax ANC/42011/EL/Chetlat dated 22 Jan 23.

2. The trials of both transrectifiers (Including input and output power quality checks) installed onboard INS Chetlat was undertaken by a team comprising of following members:-

Team Leader	Members	Unit
Lt Cdr Jagannath G Oi/C CTT (AOL)	S K Singh, MCEA(P) I	NAVCC
	S K sharma, POEL(P)	
	V B Naidu, LEM(P)	CTT (PBR)

3. **Work undertaken by CTT(Pbr)**. Towards analysis the following checks/ trials of both rectifier were undertaken by CTT(Pbr):-

(a) **Power quality checks**. PQ checks at input of both rectifiers were undertaken using Power logger 1748 connected for duration of 04 hrs. PQ checks at output of both rectifiers were undertaken using Oscilloscope. Data recorded by the power logger was analysed and all parameters were found to be within acceptable limits. Detailed report of the same placed at **enclosure**.

(b) **Input/ Output Voltages and Ripple factor**. Input/ Output Voltages and Ripple factor of both rectifiers were checked and **found to be within acceptable limits**. Details of the same are tabulated below:

Ser	Rectifier	Input	Output	Ripple factor
(i)	Rectifier no 1	415V	24.8V	0.0V
(ii)	Rectifier no 2	230V	26.5V	0.0V

4. Salient observations during the trials of both rectifiers are as follows:-

(a) No voltage fluctuation observed during trials undertaken at DC output supply from both rectifiers by oscilloscope.

(b) Abnormal noise observed in transformer of 415 V rectifier, when voltage increased through potential meter above 27 V DC.

(c) Float control charging switch found non-ops in 230 V rectifier.

(d) Auto/ manual switch found non-ops in 230 V rectifier.

5. **Recommendations**. Towards streamlining proper functioning of both rectifiers the following remedial measures are recommended:-

(a) Rectify the defect of Auto/ manual and float control switch of 230 V rectifier and abnormal noise on 415 V rectifier.

(b) Physical inspection/ tightening components and cleaning with low pressure air vacuum cleaner weekly.

(c) Weekly/ Monthly routines of both rectifiers to be carried out as per Maintops

(d) Silica gels/ packets may be kept inside both rectifier panels.

G. Jagannath

(जगन्नाथ गूरुमूर्ति /Jagannath Gurumurthy)
लेफ़्टिनेंट कमांडर / Lieutenant Commander
प्रभारी अधिकारी / Officer-in-Charge(AOL)

Encl:- As above

Copy to:-

The Naval Component Commander
{for SSO(Tech)
Headquarters Naval Component
C/o Navy Office
Port Blair – 744 102

The Commanding Officer
INS Chetlat
C/o Navy Office
Port Blair - 744 102

415 V

FLUKE

Evaluated session	Begin	End
INS CHETLAT dtd 230123	23-01-2023 10:40:00 AM	23-01-2023 3:50:00 PM

Summary

Frequency	PASS
Slow Voltage Variations	PASS
Voltage Harmonics	PASS
Unbalance	PASS
Flicker Plt	PASS
Mains Signaling Voltage	PASS
Result	PASS

Frequency

Required values within limit	99.5% / 100% of the time, according to EN50160
Maximum 99.5% / 100%	+1% / +4% of 50 Hz
Minimum 99.5% / 100%	-1% / -6% of 50 Hz

Results

	99.5% Value	100% Value
Result	PASS	PASS
% Within Limit	100.00%	100.00%
Maximum 99.5% / 100%	50.23Hz (0.46%)	50.24Hz (0.47%)
Time		23-01-2023 14:10:20
Minimum 99.5% / 100%	49.86Hz (-0.29%)	49.69Hz (-0.62%)
Time		23-01-2023 12:20:20

Slow Voltage Variations

Required values within limit	95% / 100% of the time, according to EN50160
Maximum 95% / 100%	+10% / +10% of 415 V
Minimum 95% / 100%	-10% / -15% of 415 V

Results

	95% Value			100% Value		
	AB	BC	CA	AB	BC	CA
Result	PASS	PASS	PASS	PASS	PASS	PASS
% Within Limit	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
Maximum 95% / 100%	416.58V (0.38%)	416.89V (0.46%)	414.72V (-0.07%)	416.58V (0.38%)	416.89V (0.46%)	414.72V (-0.07%)
Time				23-01-2023 13:00:00	23-01-2023 13:10:00	23-01-2023 13:10:00
Minimum 95% / 100%	412.9V (-0.51%)	413.45V (-0.37%)	412.22V (-0.67%)	412.66V (-0.56%)	413.21V (-0.43%)	412V (-0.72%)

	95% Value			100% Value		
	AB	BC	CA	AB	BC	CA
Time				23-01-2023 13:30:00	23-01-2023 13:30:00	23-01-2023 13:30:00

Voltage Harmonics

Required values within limit 95% of the time, according to EN50160

h25 95% 1.5%

Results

		95% Value			Maximum Value		
		AB	BC	CA	AB	BC	CA
h25	Result	PASS	PASS	PASS			
	% Within Limit	100.00%	100.00%	100.00%			
	Value	0.74%	0.51%	0.45%	0.74%	0.52%	0.45%
	Time				23-01-2023 10:50:00	23-01-2023 11:10:00	23-01-2023 12:40:00

Unbalance

Required values within limit 95% of the time, according to EN50160

Maximum 95% 2%

Results

	95% Value	Maximum Value
Result	PASS	
% Within Limit	100.00%	
Value	0.39%	0.40%
Time		23-01-2023 10:50:00 AM

Flicker Plt

Required values within limit 95% of the time, according to EN50160

Maximum 95% 1

Results

	95% Value			Maximum Value		
	AB	BC	CA	AB	BC	CA
Result	PASS	PASS	PASS			
% Within Limit	100.00%	100.00%	100.00%			
Value	0.74	0.75	0.75	0.74	0.75	0.75
Time				23-01-2023 12:40:00	23-01-2023 12:40:00	23-01-2023 12:40:00

Events Summary

Number of events 0

Number of RVC events ---

230V

FLUKE

Evaluated session	Begin	End
INS CHETLAT (ii)	24-01-2023 10:10:00 AM	24-01-2023 1:30:00 PM

Summary

Frequency	PASS
Slow Voltage Variations	PASS
Voltage Harmonics	PASS
Unbalance	PASS
Flicker Plt	PASS
Mains Signaling Voltage	PASS
Result	PASS

Frequency

Required values within limit	99.5% / 100% of the time, according to EN50160
Maximum 99.5% / 100%	+1% / +4% of 50 Hz
Minimum 99.5% / 100%	-1% / -6% of 50 Hz

Results

	99.5% Value	100% Value
Result	PASS	PASS
% Within Limit	100.00%	100.00%
Maximum 99.5% / 100%	50.29Hz (0.57%)	50.31Hz (0.62%)
Time		24-01-2023 13:23:00
Minimum 99.5% / 100%	50.16Hz (0.31%)	50.13Hz (0.26%)
Time		24-01-2023 13:24:00

Slow Voltage Variations

Required values within limit	95% / 100% of the time, according to EN50160
Maximum 95% / 100%	+10% / +10% of 230 V
Minimum 95% / 100%	-10% / -15% of 230 V

Results

	95% Value	100% Value
	AN	AN
Result	PASS	PASS
% Within Limit	100.00%	100.00%
Maximum 95% / 100%	222.82V (-3.12%)	222.92V (-3.08%)
Time		24-01-2023 10:40:00
Minimum 95% / 100%	216.84V (-5.72%)	216.84V (-5.72%)

	95% Value	100% Value
	AN	AN
Time		24-01-2023 11:50:00

Voltage Harmonics

Required values within limit 95% of the time, according to EN50160

h25 95% 1.5%

Results

		95% Value	Maximum Value
		AN	AN
h25	Result	PASS	
	% Within Limit	100.00%	
	Value	0.90%	0.92%
	Time		24-01-2023 11:10:00

Unbalance

Required values within limit 95% of the time, according to EN50160

Maximum 95% 2%

Results

	95% Value	Maximum Value
Result	-	
% Within Limit	-	
Value	-	

Flicker Plt

Required values within limit 95% of the time, according to EN50160

Maximum 95% 1

Results

	95% Value	Maximum Value
	AN	AN
Result	PASS	
% Within Limit	100.00%	
Value	0.57	0.57
Time		24-01-2023 12:10:00

Events Summary

Number of events 0

Number of RVC events ---