

T e s t R e p o r t

Report No : U10044

Client: : Power Data Associates
Wrest Park,
Silsoe,
Bedfordshire
MK45 4HR

Description : Openreach (Nokia) G.Fast Pod

Manufacturer : Not disclosed

Type/Model : 3AP67048HAAA

Test Specification : Measurement of power consumption in accordance with the
'Unmetered Supplies Operational Information Document' –
Version 18.0 (11/04/2018)

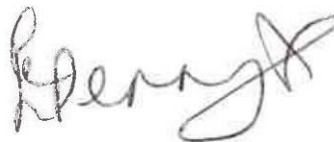
Date Testing Started : 07/07/2018

Conclusion : Refer to body of report

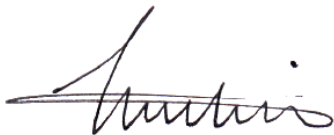
Date of Issue : 18/07/2018

Date of Expiry : 17/07/2023

Tested by: E. PERRY
Position: Technical Administrator
Apprentice



Approved by: T. MALIK
Position: Operations Manager



1286

INTRODUCTION

Power Data Associates has supplied the product identified in table 1 for measurement of power consumption in accordance with the 'Unmetered Supplies Operational Information Document' – Version 18.0 (11/04/2018).

Active channel loading was simulated using modems connected to the line cards via a patch panel.

PRODUCT DETAILS

Table 1. Test Sample Details

Product Description	Openreach (Nokia) G.Fast Pod
Model No.	3AP67048HAAA
Number of Samples	Five
Condition on Receipt	Good
Nominal Dimensions	L – 500mm; W – 360mm; H – 1000mm
Product Supply Requirement	48V DC
Power	150W Nominal
Sampling Method: Test samples selected and supplied by client, no sampling method specified by client.	

The customer has declared that the equipment load does not vary with temperature unless active cooling is required using the roof fan, the roof fan is used when internal temperature limits are exceeded.

Continued on following page

RESULTS

Table 2. Wattage and VA results for Openreach (Nokia) G.Fast Pod - Control cards with three line cards

Operating Mode	3 line cards no load				
Watts					
Voltage	Sample Number				
	1	2	3	4	5
44	151.36	153.35	151.13	150.95	156.09
46	151.89	153.66	153.23	153.06	156.76
48	152.80	153.81	154.03	153.62	157.09
50	153.70	153.97	154.77	154.61	157.53
52	154.29	155.10	155.17	155.56	157.19
VA					
Voltage	Sample Number				
	1	2	3	4	5
44	151.37	153.36	151.14	150.97	156.11
46	151.90	153.67	153.24	153.08	156.78
48	152.81	153.82	154.04	153.64	157.10
50	153.71	153.98	154.78	154.62	157.54
52	154.30	155.11	155.18	155.57	157.20
Power Factor					
Voltage	Sample Number				
	1	2	3	4	5
44	1.00	1.00	1.00	1.00	1.00
46	1.00	1.00	1.00	1.00	1.00
48	1.00	1.00	1.00	1.00	1.00
50	1.00	1.00	1.00	1.00	1.00
52	1.00	1.00	1.00	1.00	1.00
Ambient Temperature During Test (°C)			24.2		
PF Leading/Lagging			N/A		

Continued on following page

Table 3. Wattage and VA results for Openreach (Nokia) G.Fast Pod - Control cards with two line cards

Operating Mode	2 line cards no load				
Watts					
Voltage	Sample Number				
	1	2	3	4	5
44	126.23	126.54	126.66	126.18	126.21
46	128.80	127.11	127.44	126.63	126.58
48	128.83	128.04	128.13	127.20	127.21
50	129.08	128.21	128.66	127.61	127.97
52	129.48	128.75	129.17	128.21	128.36
VA					
Voltage	Sample Number				
	1	2	3	4	5
44	126.24	126.55	126.67	126.20	126.22
46	128.82	127.13	127.45	126.65	126.68
48	128.84	128.05	128.19	127.22	127.72
50	129.10	128.23	128.71	127.62	127.98
52	129.49	128.77	129.19	128.26	128.38
Power Factor					
Voltage	Sample Number				
	1	2	3	4	5
44	1.00	1.00	1.00	1.00	1.00
46	1.00	1.00	1.00	1.00	1.00
48	1.00	1.00	1.00	1.00	1.00
50	1.00	1.00	1.00	1.00	1.00
52	1.00	1.00	1.00	1.00	1.00
Ambient Temperature During Test (°C)			24.7		
PF Leading/Lagging			N/A		

Continued on following page

Table 4. Wattage and VA results for OPENREACH (NOKIA) G.FAST POD - Control cards with single line card

Operating Mode	1 line card no load				
Watts					
Voltage	Sample Number				
	1	2	3	4	5
44	105.49	104.71	104.11	104.22	104.72
46	105.75	105.30	105.10	104.66	105.37
48	105.98	105.67	105.50	105.18	105.87
50	106.53	106.17	106.19	105.42	106.27
52	106.92	106.60	106.61	106.17	106.75
VA					
Voltage	Sample Number				
	1	2	3	4	5
44	105.51	104.73	104.13	104.23	104.74
46	105.77	105.32	105.11	104.68	105.38
48	106.00	105.69	105.51	105.20	105.86
50	106.55	106.19	106.21	105.44	106.29
52	106.93	106.62	106.63	106.19	106.76
Power Factor					
Voltage	Sample Number				
	1	2	3	4	5
44	1.00	1.00	1.00	1.00	1.00
46	1.00	1.00	1.00	1.00	1.00
48	1.00	1.00	1.00	1.00	1.00
50	1.00	1.00	1.00	1.00	1.00
52	1.00	1.00	1.00	1.00	1.00
Ambient Temperature During Test (°C)			24.5		
PF Leading/Lagging			N/A		

Continued on following page

Table 5. Wattage and VA results for OPENREACH (NOKIA) G.FAST POD - Control cards only

Operating Mode	Control cards only (no line cards)				
Watts					
Voltage	Sample Number				
	1	2	3	4	5
44	78.80	78.01	77.71	77.10	77.89
46	79.19	78.53	78.12	77.55	78.24
48	79.63	79.01	78.66	77.94	78.78
50	80.03	79.50	79.12	78.58	79.24
52	80.51	80.19	79.70	79.18	79.81
VA					
Voltage	Sample Number				
	1	2	3	4	5
44	78.92	78.04	77.74	77.13	77.91
46	79.22	78.55	78.15	77.58	78.26
48	79.65	79.04	78.69	77.97	78.80
50	80.45	79.53	79.14	78.60	79.26
52	80.53	80.22	79.73	79.21	79.83
Power Factor					
Voltage	Sample Number				
	1	2	3	4	5
44	1.00	1.00	1.00	1.00	1.00
46	1.00	1.00	1.00	1.00	1.00
48	1.00	1.00	1.00	1.00	1.00
50	1.00	1.00	1.00	1.00	1.00
52	1.00	1.00	1.00	1.00	1.00
Ambient Temperature During Test (°C)			24.7		
PF Leading/Lagging			N/A		

Continued on following page

Table 6. Wattage and VA results for OPENREACH (NOKIA) G.FAST POD - Line card 1

Operating Mode	Line card 1 - 100% load (16 active channels), line cards 2 & 3 no load				
Watts					
Voltage	Sample Number				
	1	2	3	4	5
44	170.43	169.44	169.27	169.97	168.11
46	170.45	169.56	169.98	170.24	169.29
48	170.50	169.62	170.17	170.48	169.85
50	171.23	169.75	170.60	170.94	170.51
52	172.41	169.80	170.91	171.34	171.15
VA					
Voltage	Sample Number				
	1	2	3	4	5
44	170.44	169.46	169.29	169.98	168.12
46	170.46	169.58	170.00	170.25	169.31
48	170.52	169.63	170.18	170.50	169.87
50	171.24	169.77	170.62	170.96	170.52
52	171.42	169.81	170.63	171.36	171.18
Power Factor					
Voltage	Sample Number				
	1	2	3	4	5
44	1.00	1.00	1.00	1.00	1.00
46	1.00	1.00	1.00	1.00	1.00
48	1.00	1.00	1.00	1.00	1.00
50	1.00	1.00	1.00	1.00	1.00
52	1.00	1.00	1.00	1.00	1.00
Ambient Temperature During Test (°C)			24.8		
PF Leading/Lagging			N/A		

Continued on following page

Table 7. Wattage and VA results for OPENREACH (NOKIA) G.FAST POD - Line card 1

Operating Mode	Line card 1 - 75% load (13 active channels), line cards 2 & 3 no load				
Watts					
Voltage	Sample Number				
	1	2	3	4	5
44	166.24	164.95	166.02	165.25	167.32
46	167.34	165.22	166.59	166.06	167.99
48	167.72	165.32	166.94	166.50	168.72
50	167.95	165.49	167.30	167.04	168.87
52	168.42	166.50	167.77	167.42	169.84
VA					
Voltage	Sample Number				
	1	2	3	4	5
44	166.25	164.97	166.03	165.26	167.33
46	167.35	165.23	166.61	166.08	168.01
48	167.73	165.33	166.95	166.52	168.73
50	167.97	165.51	167.31	167.06	168.89
52	168.43	166.51	167.79	167.43	169.85
Power Factor					
Voltage	Sample Number				
	1	2	3	4	5
44	1.00	1.00	1.00	1.00	1.00
46	1.00	1.00	1.00	1.00	1.00
48	1.00	1.00	1.00	1.00	1.00
50	1.00	1.00	1.00	1.00	1.00
52	1.00	1.00	1.00	1.00	1.00
Ambient Temperature During Test (°C)			24.3		
PF Leading/Lagging			N/A		

Continued on following page

Table 8. Wattage and VA results for OPENREACH (NOKIA) G.FAST POD - Line card 1

Operating Mode	Line card 1 - 50% load (9 active channels), line cards 2 & 3 no load				
Watts					
Voltage	Sample Number				
	1	2	3	4	5
44	162.36	159.62	160.91	160.10	164.12
46	162.64	159.67	161.01	161.16	164.37
48	163.07	160.24	161.27	161.61	164.78
50	163.19	160.59	161.60	162.19	164.90
52	163.79	160.96	161.96	162.63	165.50
VA					
Voltage	Sample Number				
	1	2	3	4	5
44	162.38	159.63	160.92	160.11	164.14
46	162.63	159.68	161.02	161.17	164.39
48	163.08	160.26	161.28	161.63	164.79
50	163.21	160.61	161.62	162.21	164.91
52	163.80	160.98	161.97	162.64	165.51
Power Factor					
Voltage	Sample Number				
	1	2	3	4	5
44	1.00	1.00	1.00	1.00	1.00
46	1.00	1.00	1.00	1.00	1.00
48	1.00	1.00	1.00	1.00	1.00
50	1.00	1.00	1.00	1.00	1.00
52	1.00	1.00	1.00	1.00	1.00
Ambient Temperature During Test (°C)			24.3		
PF Leading/Lagging			N/A		

Continued on following page

Table 9. Wattage and VA results for OPENREACH (NOKIA) G.FAST POD - Line card 1

Operating Mode	Line card 1 - 25% load (5 active channels), line cards 2 & 3 no load				
Watts					
Voltage	Sample Number				
	1	2	3	4	5
44	155.66	154.76	157.17	153.86	159.99
46	155.72	155.09	157.64	154.50	160.17
48	156.13	155.62	158.08	155.56	160.29
50	156.54	155.77	158.34	156.03	160.88
52	156.93	156.36	158.65	157.09	161.13
VA					
Voltage	Sample Number				
	1	2	3	4	5
44	155.67	155.77	157.19	153.87	160.00
46	155.74	155.11	157.65	154.51	160.19
48	156.15	155.63	158.09	155.57	160.31
50	156.55	155.78	158.36	156.04	160.90
52	156.95	156.37	158.66	157.10	161.14
Power Factor					
Voltage	Sample Number				
	1	2	3	4	5
44	1.00	0.99	1.00	1.00	1.00
46	1.00	1.00	1.00	1.00	1.00
48	1.00	1.00	1.00	1.00	1.00
50	1.00	1.00	1.00	1.00	1.00
52	1.00	1.00	1.00	1.00	1.00
Ambient Temperature During Test (°C)			25.4		
PF Leading/Lagging			N/A		

Continued on following page

Table 10. Wattage and VA results for OPENREACH (NOKIA) G.FAST POD - Line card 2

Operating Mode	Line card 2 - 100% load (16 active channels), line cards 1 & 3 no load				
Watts					
Voltage	Sample Number				
	1	2	3	4	5
44	172.21	171.49	170.13	170.42	171.05
46	172.56	171.94	170.52	171.06	171.15
48	172.83	172.12	170.80	171.43	171.48
50	173.33	172.22	171.08	171.68	171.58
52	173.37	172.64	171.32	172.14	171.74
VA					
Voltage	Sample Number				
	1	2	3	4	5
44	172.22	171.51	170.15	170.44	171.06
46	172.57	171.96	170.54	171.07	171.23
48	172.84	172.14	170.81	171.44	171.50
50	173.34	172.23	171.09	171.69	171.60
52	173.38	172.65	171.34	172.15	171.76
Power Factor					
Voltage	Sample Number				
	1	2	3	4	5
44	1.00	1.00	1.00	1.00	1.00
46	1.00	1.00	1.00	1.00	1.00
48	1.00	1.00	1.00	1.00	1.00
50	1.00	1.00	1.00	1.00	1.00
52	1.00	1.00	1.00	1.00	1.00
Ambient Temperature During Test (°C)			24.3		
PF Leading/Lagging			N/A		

Continued on following page

Table 11. Wattage and VA results for OPENREACH (NOKIA) G.FAST POD - Line card 2

Operating Mode	Line card 2 - 75% load (13 active channels), line cards 1 & 3 no load				
Watts					
Voltage	Sample Number				
	1	2	3	4	5
44	166.78	167.65	167.08	167.58	169.99
46	176.61	167.93	167.44	167.92	170.14
48	167.72	168.03	167.72	168.02	170.55
50	167.86	168.22	167.98	168.35	170.78
52	168.07	168.61	168.44	168.63	171.16
VA					
Voltage	Sample Number				
	1	2	3	4	5
44	166.79	167.67	167.10	167.60	170.01
46	167.64	167.94	167.46	167.94	170.15
48	167.73	168.09	167.74	168.03	170.57
50	167.88	168.23	167.99	168.36	170.80
52	168.08	168.63	168.45	168.64	171.17
Power Factor					
Voltage	Sample Number				
	1	2	3	4	5
44	1.00	1.00	1.00	1.00	1.00
46	1.05	1.00	1.00	1.00	1.00
48	1.00	1.00	1.00	1.00	1.00
50	1.00	1.00	1.00	1.00	1.00
52	1.00	1.00	1.00	1.00	1.00
Ambient Temperature During Test (°C)			24.3		
PF Leading/Lagging			N/A		

Continued on following page

Table 12. Wattage and VA results for OPENREACH (NOKIA) G.FAST POD - Line card 2

Operating Mode	Line card 2 - 50% load (9 active channels), line cards 1 & 3 no load				
Watts					
Voltage	Sample Number				
	1	2	3	4	5
44	160.31	161.36	162.62	162.80	164.80
46	160.84	161.71	163.18	163.11	164.89
48	161.40	161.90	163.34	163.42	165.22
50	162.02	162.26	163.55	163.77	165.73
52	162.66	162.77	163.74	164.07	165.80
VA					
Voltage	Sample Number				
	1	2	3	4	5
44	160.34	161.38	162.63	162.82	164.81
46	160.85	161.73	163.19	163.13	164.91
48	161.41	161.91	163.36	163.43	165.23
50	162.04	162.27	163.56	163.78	165.74
52	162.67	162.78	163.75	164.08	165.81
Power Factor					
Voltage	Sample Number				
	1	2	3	4	5
44	1.00	1.00	1.00	1.00	1.00
46	1.00	1.00	1.00	1.00	1.00
48	1.00	1.00	1.00	1.00	1.00
50	1.00	1.00	1.00	1.00	1.00
52	1.00	1.00	1.00	1.00	1.00
Ambient Temperature During Test (°C)			24.6		
PF Leading/Lagging			N/A		

Continued on following page

Table 13. Wattage and VA results for OPENREACH (NOKIA) G.FAST POD - Line card 2

Operating Mode	Line card 2 - 25% load (5 active channels), line cards 1 & 3 no load				
Watts					
Voltage	Sample Number				
	1	2	3	4	5
44	155.71	156.63	158.16	158.19	160.08
46	155.85	157.27	158.27	158.24	160.30
48	156.06	158.32	158.46	158.76	160.59
50	156.36	158.80	158.68	159.24	160.76
52	156.55	158.99	159.01	159.60	160.86
VA					
Voltage	Sample Number				
	1	2	3	4	5
44	155.72	156.64	158.17	158.21	160.09
46	155.86	157.29	158.28	158.25	160.31
48	156.08	158.33	158.47	158.77	160.61
50	156.37	158.82	158.69	159.26	160.77
52	156.56	159.01	159.02	159.62	160.87
Power Factor					
Voltage	Sample Number				
	1	2	3	4	5
44	1.00	1.00	1.00	1.00	1.00
46	1.00	1.00	1.00	1.00	1.00
48	1.00	1.00	1.00	1.00	1.00
50	1.00	1.00	1.00	1.00	1.00
52	1.00	1.00	1.00	1.00	1.00
Ambient Temperature During Test (°C)			24.5		
PF Leading/Lagging			N/A		

Continued on following page

Table 14. Wattage and VA results for OPENREACH (NOKIA) G.FAST POD - Line card 3

Operating Mode	Line card 3 - 100% load (16 active channels), line cards 1 & 2 no load				
Watts					
Voltage	Sample Number				
	1	2	3	4	5
44	172.02	171.13	171.47	171.17	171.81
46	172.10	171.40	171.96	171.39	172.02
48	172.27	172.11	172.26	171.90	172.48
50	172.89	172.36	172.63	172.23	173.30
52	173.28	172.75	173.02	172.67	173.64
VA					
Voltage	Sample Number				
	1	2	3	4	5
44	172.04	171.14	171.43	171.19	171.83
46	172.12	171.42	171.97	171.41	172.03
48	172.28	172.12	172.28	171.92	172.50
50	172.90	172.38	172.64	172.24	173.31
52	173.30	172.76	173.03	172.69	173.65
Power Factor					
Voltage	Sample Number				
	1	2	3	4	5
44	1.00	1.00	1.00	1.00	1.00
46	1.00	1.00	1.00	1.00	1.00
48	1.00	1.00	1.00	1.00	1.00
50	1.00	1.00	1.00	1.00	1.00
52	1.00	1.00	1.00	1.00	1.00
Ambient Temperature During Test (°C)			25.2		
PF Leading/Lagging			N/A		

Continued on following page

Table 15. Wattage and VA results for OPENREACH (NOKIA) G.FAST POD - Line card 3

Operating Mode	Line card 3 - 75% load (13 active channels), line cards 1 & 2 no load				
Watts					
Voltage	Sample Number				
	1	2	3	4	5
44	168.38	167.71	167.09	167.88	169.77
46	168.73	167.82	167.60	168.26	169.88
48	168.86	168.14	167.80	168.50	170.05
50	169.50	168.69	168.13	168.93	170.33
52	170.28	168.85	168.74	169.05	170.47
VA					
Voltage	Sample Number				
	1	2	3	4	5
44	168.39	167.72	167.11	167.89	169.79
46	168.74	167.83	167.61	168.28	169.89
48	168.88	168.16	167.81	168.52	170.06
50	169.51	168.71	168.14	168.94	170.34
52	170.29	168.86	168.76	169.06	170.48
Power Factor					
Voltage	Sample Number				
	1	2	3	4	5
44	1.00	1.00	1.00	1.00	1.00
46	1.00	1.00	1.00	1.00	1.00
48	1.00	1.00	1.00	1.00	1.00
50	1.00	1.00	1.00	1.00	1.00
52	1.00	1.00	1.00	1.00	1.00
Ambient Temperature During Test (°C)			24.8		
PF Leading/Lagging			N/A		

Continued on following page

Table 16. Wattage and VA results for OPENREACH (NOKIA) G.FAST POD - Line card 3

Operating Mode	Line card 3 - 50% load (9 active channels), line cards 1 & 2 no load				
Watts					
Voltage	Sample Number				
	1	2	3	4	5
44	162.63	162.62	162.44	162.10	164.81
46	162.79	162.82	162.70	162.79	165.13
48	163.90	163.33	163.21	163.14	165.15
50	164.31	164.44	163.56	163.07	165.28
52	164.94	164.78	164.14	164.18	166.27
VA					
Voltage	Sample Number				
	1	2	3	4	5
44	162.64	162.63	162.43	162.12	164.82
46	162.81	162.84	162.71	162.80	165.14
48	163.92	163.33	163.23	163.15	165.16
50	164.32	164.45	163.58	163.69	165.29
52	164.95	164.80	164.15	164.19	166.28
Power Factor					
Voltage	Sample Number				
	1	2	3	4	5
44	1.00	1.00	1.00	1.00	1.00
46	1.00	1.00	1.00	1.00	1.00
48	1.00	1.00	1.00	1.00	1.00
50	1.00	1.00	1.00	1.00	1.00
52	1.00	1.00	1.00	1.00	1.00
Ambient Temperature During Test (°C)			24.4		
PF Leading/Lagging			N/A		

Continued on following page

Table 17. Wattage and VA results for OPENREACH (NOKIA) G.FAST POD - Line card 3

Operating Mode	Line card 3 - 25% load (5 active channels), line cards 1 & 2 no load				
Watts					
Voltage	Sample Number				
	1	2	3	4	5
44	155.61	156.48	156.93	157.76	160.44
46	156.60	156.75	157.43	158.35	160.52
48	156.61	157.71	157.89	158.72	160.90
50	156.41	157.93	158.39	158.83	161.25
52	156.72	158.61	158.90	159.59	161.38
VA					
Voltage	Sample Number				
	1	2	3	4	5
44	155.62	156.49	156.94	157.78	160.45
46	156.61	156.76	157.45	158.36	160.53
48	156.63	157.27	157.91	158.73	160.92
50	156.42	157.94	158.40	158.84	161.27
52	156.73	158.69	158.91	159.60	161.40
Power Factor					
Voltage	Sample Number				
	1	2	3	4	5
44	1.00	1.00	1.00	1.00	1.00
46	1.00	1.00	1.00	1.00	1.00
48	1.00	1.00	1.00	1.00	1.00
50	1.00	1.00	1.00	1.00	1.00
52	1.00	1.00	1.00	1.00	1.00
Ambient Temperature During Test (°C)			24.1		
PF Leading/Lagging			N/A		

Continued on following page

Table 18. Wattage and VA results for OPENREACH (NOKIA) G.FAST POD – Roof fan

Operating Mode	Roof fan only				
Watts					
Voltage	Sample Number				
	1	2	3	4	5
44	8.73	8.34	8.79	8.95	9.06
46	8.84	8.50	8.84	9.16	9.09
48	8.86	8.59	8.94	9.22	9.11
50	8.92	8.66	8.98	9.26	9.22
52	9.00	8.77	9.03	9.35	9.27
VA					
Voltage	Sample Number				
	1	2	3	4	5
44	9.73	9.32	9.84	9.99	10.20
46	9.84	9.48	9.83	10.15	10.27
48	9.84	9.56	9.90	10.22	10.27
50	9.90	9.61	9.92	10.22	10.37
52	9.97	9.72	9.94	10.31	10.40
Power Factor					
Voltage	Sample Number				
	1	2	3	4	5
44	0.90	0.89	0.89	0.90	0.89
46	0.90	0.90	0.90	0.90	0.89
48	0.90	0.90	0.90	0.90	0.89
50	0.90	0.90	0.91	0.91	0.89
52	0.90	0.90	0.91	0.91	0.89
Ambient Temperature During Test (°C)			27.4		
PF Leading/Lagging			N/A		

Continued on following page

DEVIATION(S) FROM TEST STANDARD

No reported deviations from test standard.

MEASUREMENT UNCERTAINTY

The following expanded uncertainties apply to the measurements shown in the results;

True Power (W): $\pm 0.69\%$, Apparent Power (VA): $\pm 0.61\%$

The reported expanded uncertainty is based on a standard uncertainty multiplied by a coverage factor $k=2$, providing a coverage probability of approximately 95%. The uncertainty evaluation has been carried out in accordance with UKAS requirements.

Continued on following page

ILLUSTRATION



Figure 1. Product image

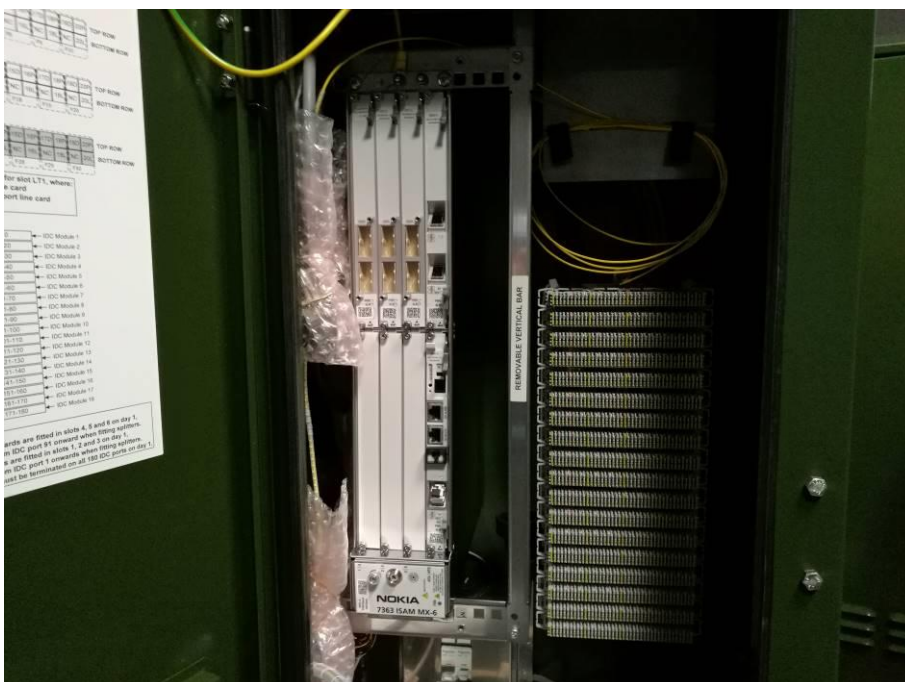


Figure 2. Internal configuration

End

This page is to be read in conjunction with the first page of this report