INDIA NIPPON ELECTRICALS LTD., HOSUR-635114	CUSTOMER REPORT	REP.REF : IKM/24/004 SHEET : 1 of 9

Customer : IKM **Application : 8525 IG COIL**

Product : 1. IGNITION COIL

Summary :

Submission of modified samples of Ign.coil for IKM requirement. Qty : 52nos.

Based on customer requirement with reduced HT cable length and modified HT cap seal , we have made samples with required modifications and were sent to customer on 07.08.2024 vide report ref : IKM/24/002.

For further testing, customer asked for another 52-Nos of samples inline with previous route vide mail dated on 11.09.2024.
Based on above customer requirement, 52-Nos of samples have been made and are being submitted to customer vide report ref : IKM/24/004 dtd:20.09.2024.

Request customer testing and feedback

Esakki Selvam E	Pradeepraj S	Kannayiram P	Umashankar R
Prepared [Product Engineer]	Checked [Product Lead]	Checked [Engg QA]	Approved [Incharge]

INDIA NIPPON ELECTRICALS LTD., HOSUR - 635 114	CUSTOMER REPORT	REP REF : IKM/24/004 SHEET : 2 OF 9 DATE : 20.09.2024

CUSTOMER : IKM **DRAWING REFERENCE**: CN 40 10315 "-"

PRODUCT : IGNITION COIL

APPLICATION : MOTORCYCLE - 8525

QUANTITY : 52 Nos

REFERENCE :

1. Email received from customer on 14.06.2024 regarding requirement of 12-Nos of Ignition coil with H.T Cable length reduced from 200 mm to 170 mm and new seal (spark plug) for spark plug fitment.

2. Purchase order received from customer on 05.07.2024 for new seal (spark plug) sample submission, With H.T cable length 170 mm.

3. 3D model & seal proposal was submitted on 18.07.2024 and Customer approval received on 19.07.2024.

4. INEL have sent 12-Nos of ignition coil with new seal (spark plug) vide INEL Report reference IKM/24/002.

5. For further testing, customer asked for another 52-Nos of samples inline with previous route vide mail dated on 11.09.2024.

DETAILS :

1.Based on above customer requirement, 52-Nos of samples have been made and are being submitted to customer vide report ref : IKM/24/004 dtd:20.09.2024.

2. Samples were tested as per outline drawing and results are meeting the specification. Refer sheet 3 of 9.

3. Secondary No load voltage waveform and test condition attached for reference. Refer sheet 4 of 9.

4. INEL marked up drawing attached for reference. Refer sheet 5 of 9 to 6 of 9.

5. Dimensional results attached for reference. Refer sheet 7 of 9 & 8 of 9.

CONCLUSION ;

1. Samples have been made through tooled up route except seal (spark plug) which was made by proto route.

2. Samples were made using production process & tested at R & D and confirmed for performance.

3. Ignition coil will be supplied as common part for both the applications of IKM-9111 & 8525.

Request customer testing and feedback.

INDIA NIPPON ELECTRICALS LTD., HOSUR - 635 114	**PERFORMANCE REPORT**	**REP REF** : IKM/24/004 **SHEET** : 3 OF 9 **DATE** : 20.09.2024

CUSTOMER : IKM

DRAWING REFERENCE: CN 40 10315 "-"

PRODUCT : IGNITION COIL

APPLICATION : MOTORCYCLE - 8525

QUANTITY : 52 Nos

S.NO	DESCRIPTION	UNIT	SPEC	Samples					Remarks
				1/52	2/52	3/52	4/52	5/52	
P1	Secondary No load voltage (@ Vb=14V . On time 2.8 Milli sec)	KV	25 Min	36.4	36.2	36.4	36.5	36.4	OK
P2	Peak secondary current (@ Vb=14V . On time 2.8 Milli sec)	milli Amps	55 (Ref)	50.0	50.0	50.0	50.0	50.0	OK
P3	Spark duration (1KV Zener diode method) (@ Vb=14V . On time 2.8 Milli sec)	micro seconds	650 min	730	730	730	730	730	OK
P4	Spark energy (1KV Zener diode method) (@ Vb=14V . On time 2.8 Milli sec)	milli joules	12.5 min	16.8	17.0	16.5	16.8	17.0	OK
P5	Primary coil resistance @ 25°C ± 5°C	ohm	2.3 ± 10%	2.12	2.13	2.14	2.12	2.11	OK
P6	Secondary coil resistance @ 25°C ± 5°C (without plug cap)	K.ohm	20.0 ± 20%	19.6	19.8	19.6	19.8	19.8	OK
P7	Primary coil Inductance at 1Khz @ 25°C	mH	6.8 ± 10%	6.8	6.9	6.9	6.8	6.9	OK
P8	Secondary coil Inductance at 1 Khz @ 25°C(For reference only)	H	17.5 ± 20%	19.8	20.0	19.8	20.2	19.6	OK
P9	Dielectric strength	KV	35 KV for 1 Minute	OK	OK	OK	OK	OK	-

Performance requirements have been tested and found satisfactory.

INDIA NIPPON ELECTRICALS LTD., HOSUR - 635 114	**WAVEFORM**	**REP REF** : IKM/24/004 **SHEET** : 4 OF 9 **DATE** : 20.09.2024

CUSTOMER : IKM

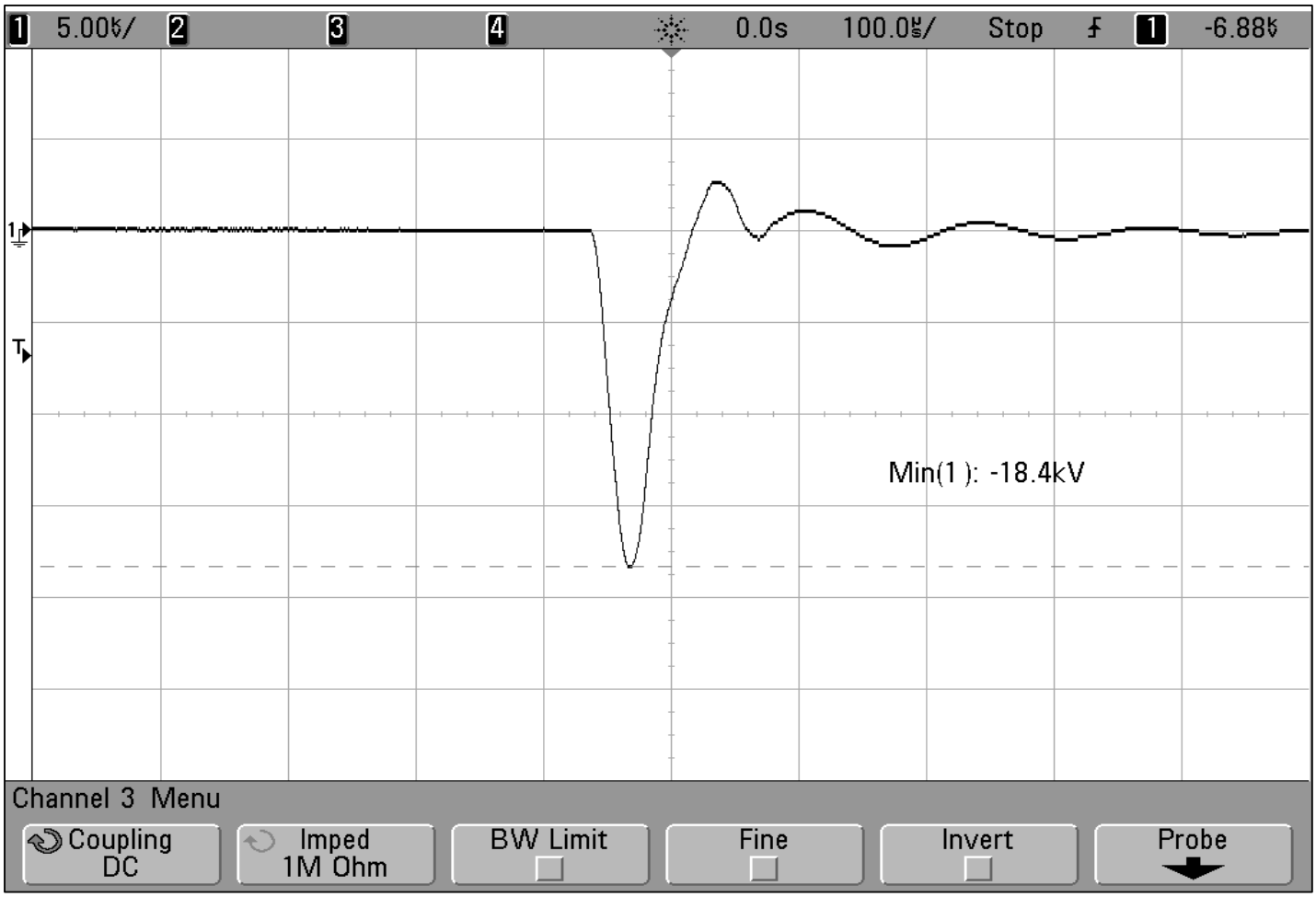
DRAWING REFERENCE: CN 40 10315"-"

PRODUCT : IGNITION COIL

APPLICATION : MOTORCYCLE - 8525

QUANTITY : 52 Nos

Secondary No load voltage waveform

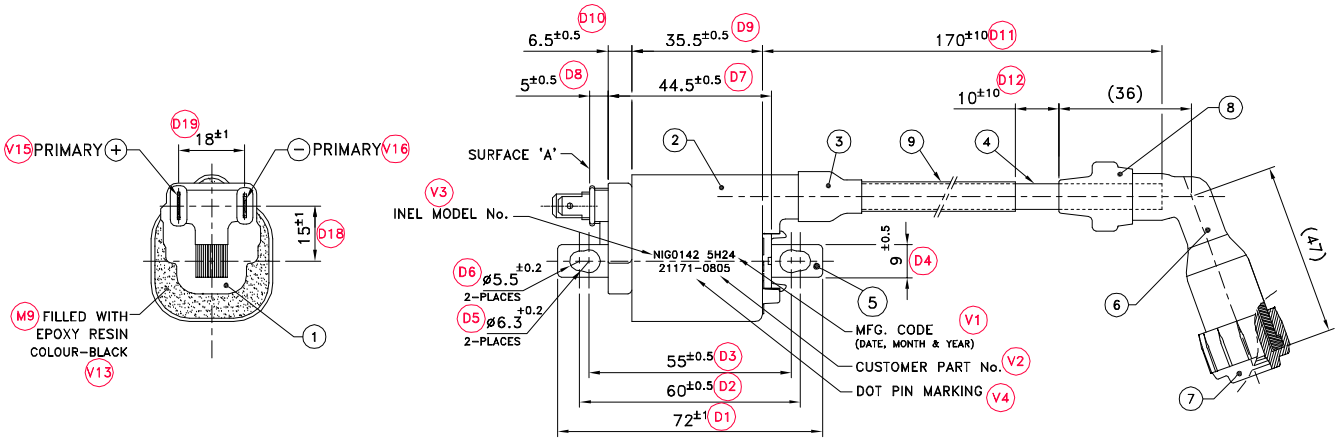


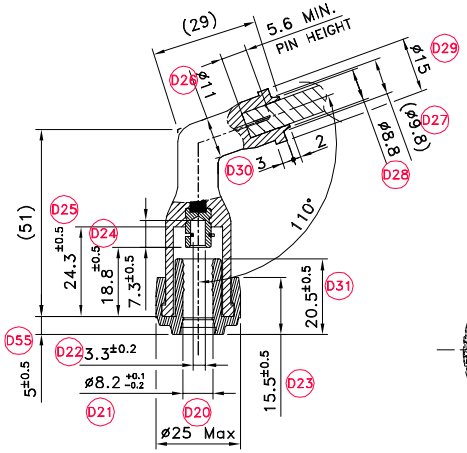
Secondary No load voltage measurement (Test condition):-

1.Input voltage	: 14V DC
2. Ontime	: 2.8ms
3. Secondary No load voltage	: 36.4 KV
4. High voltage probe	: 2000:1
5. Test temperature	: 25°C ± 5°C

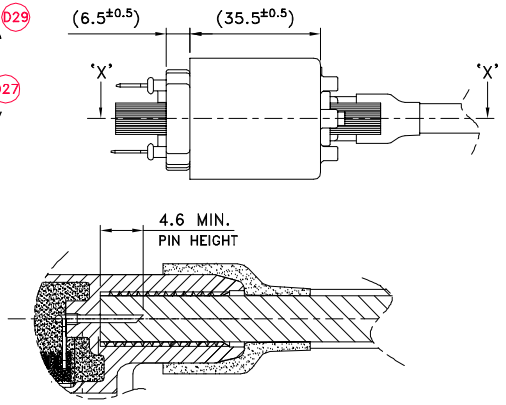
DRG. No. CN 40 10315	DO NOT SCALE	DIMENSIONS IN mm	SPECIAL CHARACTERISTICS LEGEND: MAJOR CHARACTERISTIC, CRITICAL CHARACTERISTIC	ROUGHNESS VALUE UNLESS SPECIFIED: SYMBOL ▽ ▽▽ ▽▽▽; Ra VALUE in µm 12.5 3.2 0.8	DRN No. DRP 24-4086	DATE:22.07.2024

SYM.	ALTERATIONS	DCP Ref.

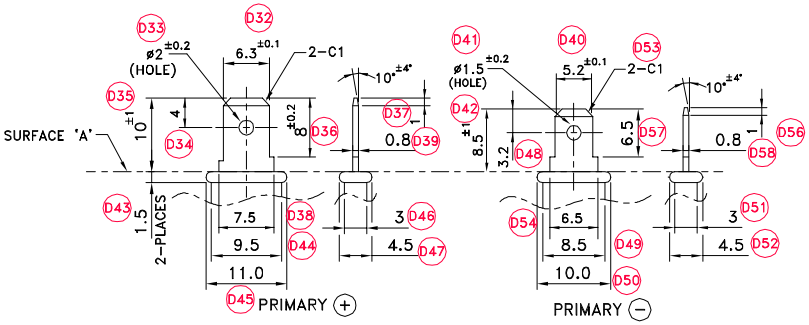




PLUG CAP ASSY.



SECTION X–X
SCALE 2:1



TERMINAL DETAILS
SCALE 2:1

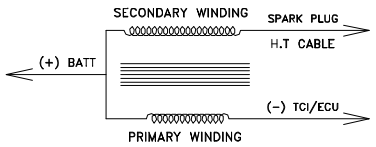


FIG. 1

Det.No.	DESCRIPTION	MATERIAL	REMARKS
9	RUBBER TUBE	EPDM-607, COLOUR-BLACK M8	HARDNESS 60±5 SHORE 'A' D61
8	SEAL (CABLE END) V11	EPDM-607, COLOUR-BLACK M7	HARDNESS 60±5 SHORE 'A' D63
7	SEAL (SPARK PLUG) V10	SILICON-503, COLOUR-BLACK M6	HARDNESS 50±5 SHORE 'A' D62
6	PLUG CAP ASSY.	PBT, UNFILLED, COLOUR-BLACK M5	–
5	I-CORE ASSY.	50A 470 – SILICON STEEL M4	THICKNESS-0.5mm
4	H.T CABLE	PVC ø7 (AS PER – IS 2465), COLOUR-BLACK	–
3	H.T CAP	EPDM-607, COLOUR-BLACK M3	HARDNESS 60±5 SHORE 'A' D64
2	SECONDARY CASE	PBT, 15% GF, COLOUR-BLACK M2	–
1	PRIMARY MOULDING	NYLON 6, UNFILLED, COLOUR-BLACK M1	–

LIMITS UNLESS STATED
DIMENSIONS WITH:
NO DECIMALS (eg. 22) ±0.4 mm
ONE DECIMALS (eg. 22.1) ±0.2 mm
TWO DECIMALS (eg. 22.12) ±0.10 mm
ANGLES ± 0 Degs. 30 Minutes.

MATL.	–
SPECN.	–
TREATMENT	–
FINISH	–

REF. IKM PART No.: 21171-0805
USED ON IKM-8525

WEIGHT 0.1510 Kg (APPROX)

INDIA NIPPON ELECTRICALS LIMITED., HOSUR.

SUPERSEDES

IGNITION COIL
(CUSTOMER OUTLINE)

SCALE	1 : 1	DATE
DRAWN		
CHECKED		
APPROVED		

DRG. No. CN 40 10315
SHEET 1 of 3

SPECIAL CHARACTERISTICS LEGEND
⚠ MAJOR CHARACTERISTIC
⚠ CRITICAL CHARACTERISTIC

ROUGHNESS VALUE UNLESS SPECIFIED			
SYMBOL	▽	▽▽	▽▽▽
Ra VALUE in µm	12.5	3.2	0.8

DRN No. DRP 24-4086 | DATE:22.07.2024

SYM.	ALTERATIONS	DCP Ref.

I SPECIFICATION

1. OPERATING SPEED RANGE : 100 ~ 12,000 RPM
2. OPERATING TEMPERATURE : −20°C ~ +90°C
3. STORAGE TEMPERATURE : −30°C ~ +90°C
4. NO. OF SPARK : 2 ROTATION / 1 FIRING
5. RESISTANCE @ 25°C ±5°C
   a) PRIMARY : 2.3 ohm ±10%
   b) SECONDARY : 20 K.ohm ±20% (WITHOUT PLUG CAP) D59
   c) Q FACTOR : 4.3
6. INDUCTANCE AT 25°C FOR REFERENCE
   a) PRIMARY INDUCTANCE : 6.8 mH ±10%
   b) SECONDARY INDUCTANCE : 17.5 H ±20% D60
7. VOLTAGE VS ONTIME DETAILS : (at 10000 RPM)

VOLTAGE VS ONTIME	
VOLTAGE (V)	ONTIME (ms)
6.0	5.0
8.0	5.0
10.0	4.5
11.0	3.8
12.0	3.3
14.5	2.3
16.5	1.9
18.0	1.7

8. RPM VS ONTIME :

	RPM	ONTIME mS	RPM	ONTIME mS
BATTERY VOLT AT 14.5V (2 ROTATION/1 FIRING)	1000	8.6	6000	2.9
	2000	5.4	7000	2.7
	3000	4.2	8000	2.5
	4000	3.6	9000	2.4
	5000	3.2	10000	2.3

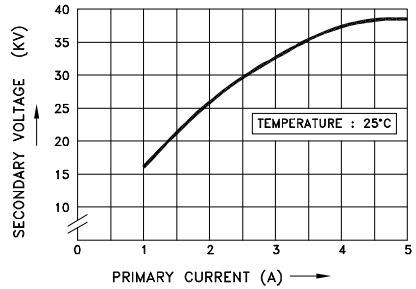
II. TEST SPECIFICATION

9. TEST TEMPERATURE : 25°C ±5°C
10. TEST VOLTAGE : 14.5V DC
11. DWELL TIME : 2.8 ±0.1ms
12. SECONDARY NO LOAD VOLTAGE : 25 kV Min.
13. SECONDARY VOLTAGE RAISE TIME : 28 micro Sec.
14. POLARITY OF H.T PULSE : NEGATIVE
15. ⚠ SPARK DURATION (1000 Vz ZENER METHOD) : 650 micro Sec.(Min.)
16. PEAK SECONDARY CURRENT : 55 mA
17. SPARK ENERGY (1000 Vz ZENER METHOD/INTEGRATION) : 12.5 mJ (Min.)
18. DIELECTRIC STRENGTH : 35 kV FOR 1 minute (UNIT TO BE TESTED AT OPEN CIRCUIT VOLTAGE)

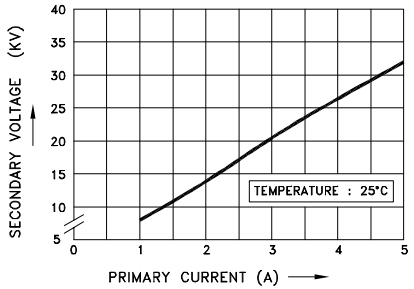
19. ASSOCIATED PARTS

PRODUCT	INEL PART No.	IKM PART No.
FWM	CN 20 10836	21001-0700
ECU UNIT	OE	21175-2223
R/R UNIT	OE	21066-0765

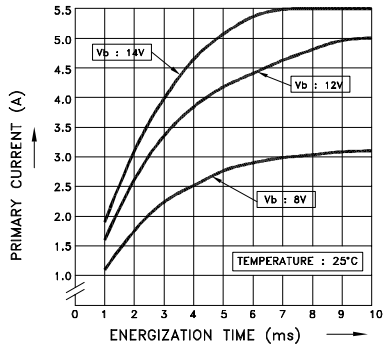
20. PRIMARY CURRENT vs SECONDARY NO LOAD VOLTAGE CHARACTERISTIC



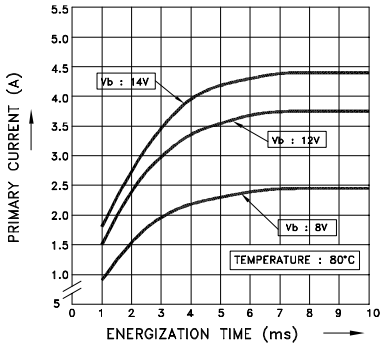
21. PRIMARY CURRENT vs SECONDARY VOLTAGE (WITH 50pF LOAD) CHARACTERISTIC



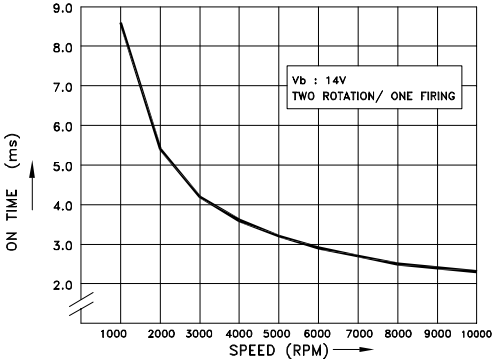
22. ENERGIZATION vs PRIMARY CURRENT AT 25°C CHARACTERISTIC



23. ENERGIZATION vs PRIMARY CURRENT AT 80°C CHARACTERISTIC



24. RPM vs ENERGIZATION CHARACTERISTIC



LIMITS UNLESS STATED
DIMENSIONS WITH:
NO DECIMALS (eg. 22) ±0.4 mm
ONE DECIMALS (eg. 22.1) ±0.2 mm
TWO DECIMALS (eg. 22.12) ±0.10 mm
ANGLES ± 0 Degs. 30 Minutes.

MATL.	–
SPECN.	–
TREATMENT	–
FINISH	–
REF.	

IGNITION COIL
(CUSTOMER OUTLINE)
USED ON IKM-8525

WEIGHT – Kg (APPROX)

INDIA NIPPON ELECTRICALS LIMITED., HOSUR.

SUPERSEDES

SCALE	1 : 1	DATE
DRAWN		
CHECKED		
APPROVED		

DRG. No. CN 40 10315
SHEET 2 of 3

INDIA NIPPON ELECTRICALS LTD., HOSUR - 635 114	LAYOUT INSPECTION REPORT	REP REF : IKM/24/004 SHEET : 7 OF 9 DATE : 20.09.2024

CUSTOMER : IKM

PRODUCT : IG COIL

APPLICATION : IKM - 8525

QUANTITY : 03 Nos

INE DWG REF. :
IG COIL : CN 40 10315 "-"

Ref No.	Specification	Unit	Samples			Remarks
			1	2	3	
IG COIL ASSLY.						
D1	72 ± 2	mm	71.92	71.89	71.82	OK
D2	60 ± 0.5	mm	60.07	60.1	60.08	OK
D3	55 ± 0.5	mm	54.94	54.01	54.97	OK
D4	9 ± 0.5	mm	8.71	8.79	8.69	OK
D5	Ø6.3 + 0.2	mm	6.42 ~ 6.46 STD PIN			OK
D6	Ø5.5 ± 0.2	mm	5.64 ~ 5.66 STD PIN			OK
D7	44.5 ± 0.5	mm	44.39	44.47	44.4	OK
D8	5 ± 0.5	mm	5.33	5.41	5.37	OK
D9	35.5 ± 0.5	mm	35.55	35.49	35.4	OK
D10	6.5 ± 0.5	mm	6.95	6.95	6.97	OK
D11	170 ± 10	mm	170	170	170	OK
D12	10 ± 10	mm	18	18	20	OK
D13	16.5 ± 1	mm	16.49	16.55	16.52	OK
D14	17.5 ± 1	mm	17.62	17.56	17.47	OK
D15	33 ± 1	mm	33.01	32.99	32.95	OK
D16	R6	mm	R6	R6	R6	OK
D17	8.5 ± 0.5	mm	8.38	8.41	8.4	OK
D18	15 ± 1	mm	15.84	15.79	15.9	OK
D19	18 ± 1	mm	17.8	17.95	17.95	OK
D20	Ø25 Max	mm	23.51	23.49	23.5	OK
D21	Ø8.2 + 0.1 - 0.2	mm	8.20 ~ 8.25 - Std pin			OK
D22	3.3 ± 0.2	mm	Std - pin gauge answered			OK
			3.30	3.26	3.24	
D23	15.5 ± 0.5	mm	15.32	15.29	15.34	OK
D24	18.8 ± 0.5	mm	18.66	18.71	18.66	OK
D25	24.3 ± 0.5	mm	24.47	24.44	24.49	OK
D26	Ø11 ± 0.4	mm	11.1	11.09	11.15	OK
D27	(Ø9.8)	mm	9.78	9.74	9.71	OK
D28	Ø8.8	mm	8.79	8.81	8.76	OK
D29	Ø15 ± 0.4	mm	15.09	15.11	15.1	OK
D30	3	mm	3	3.04	3.01	OK
D31	20.5 ± 0.5	mm	20.56	20.49	20.53	OK
D32	6.3 ± 0.1	mm	6.23	6.25	6.26	OK
D33	Ø2 ± 0.2	mm	2.06 ~ 2.08 STD PIN			OK
D34	4	mm	4.01	3.97	4.02	OK
D35	10 ± 1	mm	9.84	9.91	9.86	OK
D36	8 ± 0.2	mm	8.02	8.01	7.98	OK
D37	1 ± 0.4	mm	0.91	0.9	0.89	OK
D38	7.5	mm	7.4	7.45	7.39	OK
D39	0.8 ± 0.2	mm	0.79	0.80	0.81	OK
D40	5.2 ± 0.1	mm	5.16	5.14	5.17	OK
D41	Ø1.5 ± 0.2	mm	1.56 ~ 1.58 STD PIN			OK
D42	8.5 ± 1	mm	8.5	8.44	8.31	OK
D43	1.5	mm	1.37	1.35	1.36	OK
D44	9.5	mm	9.42	9.45	9.46	OK
D45	11.0	mm	11.03	11.09	11.1	OK
D46	3	mm	3.07	3.11	3.12	OK
D47	4.5	mm	4.51	4.54	4.6	OK

INDIA NIPPON ELECTRICALS LTD., **HOSUR - 635 114**	**LAYOUT INSPECTION REPORT**	**REP REF**	: IKM/24/004
		SHEET	: 8 OF 9
		DATE	: 20.09.2024

CUSTOMER : IKM

PRODUCT : IG COIL

APPLICATION : IKM - 8525

QUANTITY : 03 Nos

INE DWG REF. :
IG COIL : CN 40 10315 "-"

Ref No.	Specification	Unit	Samples			Remarks
			1	2	3	
D48	3.2	mm	3.13	3.18	3.16	OK
D49	8.5	mm	8.44	8.47	8.51	OK
D50	10.0	mm	9.99	9.92	9.96	OK
D51	3	mm	3.16	3.11	3.2	OK
D52	4.5	mm	4.52	4.55	4.52	OK
D53	C1	mm	1.21	1.23	1.24	OK
D54	6.5	mm	6.37	6.39	6.41	OK
D55	5 ± 0.5	mm	4.60 ~ 4.70			OK
D56	1	mm	0.9	0.88	0.91	OK
D57	6.5	mm	6.55	6.54	6.51	OK
D58	0.8 ± 0.2	mm	0.81	0.87	0.82	OK
D59	2.3 ± 10% - Primary	Ω	2.14	2.12	2.11	OK
	20 ± 20% - Secondary	KΩ	19.61	19.82	19.8	OK
D60	6.8 ± 10% - Primary	mh	6.92	6.85	6.94	OK
	17.5 ± 20% - Secondary	H	19.83	20.08	19.65	OK
D61	60 ± 5	Shore - A	63 ~ 65			OK
D62	50 ± 5	Shore - A	50 ~ 53			OK
D63	60 ± 5	Shore - A	63 ~ 65			OK
D64	60 ± 5	Shore - A	63 ~ 65			OK
D65	0.160 kg	kg	0.150			OK
VISUAL ASSLY.						
V1	MFG - CODE 5 H 19	Visual	07.08.2024 - PROVIDED			OK
V2	CUSTOMER PART NO : 21171 - 0805	Visual	NOT PROVIDED			*
V3	INEL MODEL NO. NIG 0142	Visual	NOT PROVIDED			*
V4	DOT PIN MARKING	Visual	YELLOW STICKER USED INSTEAD OF DOT PIN MARKING			*
V5	PRIMARY MOULDING COLOUR - BLACK	Visual	PRIMARY MOULDING COLOUR - BLACK PROVIDED			OK
V6	SECONDARY CASE COLOUR - BLACK	Visual	SECONDARY CASE COLOUR - BLACK PROVIDED			OK
V7	H.T CAP COLOUR - BLACK	Visual	H.T CAP COLOUR - BLACK PROVIDED			OK
V8	H.T CABLE COLOUR - BLACK	Visual	H.T CABLE COLOUR - BLACK PROVIDED			OK
V9	PLUG CAP ASSY COLOUR - BLACK	Visual	PLUG CAP ASSY COLOUR - BLACK PROVIDED			OK
V10	SEAL (SPARK PLUG) COLOUR - BLACK	Visual	SEAL (SPARK PLUG) COLOUR - BLACK PROVIDED			OK
V11	SEAL (CABLE END) COLOUR - BLACK	Visual	SEAL (CABLE END) COLOUR - BLACK PROVIDED			OK
V12	RUBBER TUBE COLOUR - BLACK	Visual	RUBBER TUBE COLOUR - BLACK PROVIDED			OK
V13	POTTING COLOUR - BLACK	Visual	POTTING COLOUR - BLACK PROVIDED			OK
V14	INEL LOGO	Visual	INEL LOGO PROVIDED			OK
V15	PRIMARY (+)	Visual	AS PER DWG FOUND OK			OK
V16	PRIMARY (-)	Visual	AS PER DWG FOUND OK			OK
MATERIAL.						
M1	PRIMARY MOULDING	NYLON 6 , UF	NYLON 6 , UF			OK
M2	SECONDARY CASE	PBT , 15% GF	PBT , 15% GF			OK
M3	H.T CAP	EPDM - 607	EPDM - 607			OK
M4	I - CORE ASSLY	50A470 - SILICON STEEL	50A470 - SILICON STEEL			OK
M5	PLUG CAP ASSLY	PBT, UF	PBT			OK
M6	SEAL SPARK PLUG	SILICON - 503	SILICON - 503			OK
M7	SEAL END CABLE	EPDM - 607	EPDM - 607			OK
M8	RUBBER TUBE	EPDM - 607	EPDM - 607			OK
M9	POTTING	EPOXY - RESIN	EPOXY - RESIN			OK

NOTE :
"*" Visual observation - V2, V3 & V4 -It will be corrected in mass production samples.

INDIA NIPPON ELECTRICALS LTD., HOSUR - 635 114	**PHOTOGRAPH**	**REP REF** : IKM/24/004 **SHEET** : 9 OF 9 **DATE** : 20.09.2024

CUSTOMER : IKM

DRAWING REFERENCE: CN 40 10315 "-"

PRODUCT : IGNITION COIL

APPLICATION : MOTORCYCLE - 8525

QUANTITY : 52 Nos

Photograph:-