SPECIFICATIONS

Customer	NOKIA						
Customer Model Name	HS-47	0694579					
	HS-47whit€	0694630					
	HS-48	0694581					
	HS-49	0694583					
FOSTER Model Name	HS-47	434309					
	HS-47whit€	442085					
	HS-48	434310					
	HS-49	436363					

Approved	Checked	Design	Charge		
MOG	SMK	NKT	NKT		
050913	050913	050913	050913		

FOSTER ELECTRIC CO.,LTD.

Document No. S5000634 512 Miyazawa-chow, Akishima, Tokyo, 196-8550 Japan. Tel +81-42-546-2465

Change History

Version	Date	Status	Handled by	Comments
0.1	13/09/2005	Initial Draft	Hideko Okayasu	First draft
0.2	20/09/2005	Revised	Takashi Nakata	Frequency Response, Outside View revised
0.3	28/09/2005	Revised	Takashi Nakata	Schematic, EMC component and Main parts revised
0.4	13/01/2006	Revised	Takashi Nakata	Block Diagram, MEC3.3, 4.3, 5.2, 7.1, 8.1, 9.3, PWB layout, EMC component and main parts, Earpiece and Mic frequency response revised. Static compression weight, Type label added.
0.5	26/01/2006	Revised	Takashi Nakata	All revised for NOKIA requirement
0.6	04/08/2006	Revised	Takashi Nakata	All revised & added for white version
0.7	10/08/2006	Revised	Takashi Nakata	EN 50332 & SAFETY 5.1 added

TITLE SPECIFICATIONS

1	Scope	This Specification CORPORATION.		oduct, FOS	ΓER ELECTRI	C CO.,LTD.deliver to NOKIA
2	List of Units	MODEL NAME HS-47 HS-47 white HS-48 HS-49	NOTES Stereo Headset Stereo Headset Stereo Headset Stereo Headset		FOSTER'S M 434309 442089 434310 436363	9 5 0
3	Outline of product		•		-	
3.1	Туре	Stereo Headset	with Send/End bu	utton.		
3.2	Feature	HS-47	2.5mm AV-conne	ctor	HS-49	3.5mm AV-connector
		HS-47 white	2.5mm AV-conne		HS-49	2.5mm AV-connector (CDMA)
3.3	Size	HS-47&48&49	Refer outside view	W.		
3.4	Weight	HS-47&48&49	~18			
3.5	Cord length	HS-47&48&49	from connector to c from control unit to from control unit to	earpiece righ	t (end of) 170mr	
3.6	The climatic	HS-47&48&49	The Climatic use between –15°C al conditions where 40°C and +85°C (conditions w nd +55°C for HS-47&48& No permane	where HS-47&4 portable prod 49 is intended ant damages a	48&49 is intended to be used ucts, as well the climatic use to be stored are between – llowed, product must fulfill all room temperature).
3.7	Schematic	HS-47&48	HP (Reh) + HP (Leh) -		V1mA=8V, Vcl	
		ı	ı		MAIN CUSTOME	R HS-47&48&49
	W/leike	Cabamatia !		20060749	NAME MAIN	434300/434310/436363
5 ISSUE DATE	White version added, 20050913 20050913	REVISIONS	I I		NAME DOCUMEN	
NAME	F-NKT F-OKY DEGN. DRAW	F-SMK F-MOG CHK. APVD			SHEET N	_

3.7	Schematic	HS-49	HS-49					
4	RoHS	HS-47,48,49	This model meets nokia's RoHS requirement.					
5	EN 50332	HS-47,48,49	Maximum SPL level <129dB/2Vpp fastRMS ; measured with HATS 3.3, ERP-DRP corrections ON at full band 20Hz to 20kHz					
			MAIN					
7	EN 50332 added		20060810 F-NKT CUSTOMER NAME HS-47&48&49					
6 5	Schematic revised 3.7 Schematic, 4 Rol	15 added	20060718 F-NKT MAIN FOSTER No. 434309/434310/436363					
ISSUE		REVISIONS	DATE NAME DOCUMENT \$5000634					
DATE NAME	F-NKT F-OKY	20060126 20060126 F-SMK F-MOG						
/	DEGN. DRAW	CHK. APVD	SHEET No 2/25					

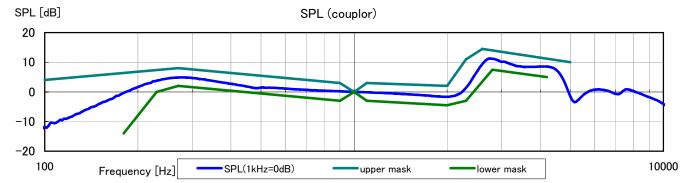
TILE

SPECIFICATIONS

EARPIECE FREQUENCY RESPONSE

TYPE	DYNAMIC
OUTPUT IMPEDANCE	37Ω +25%/-12% at 1kHz
RATED INPUT	4mW (maximum input : 10mW)
FREQUENCY MASK RANGE	100Hz∼5000Hz
OUTPUT SOUND PRESSURE LEVEL	HATS 97 dB spl ± 4 dB spl / 1mW (used soft ear)
	(0dB _{SPL} =20uPa) at 1kHz
	COUPLER: No. M04-0478-23 and base of Artificial Ear
	$89 dB \text{ spl} \pm 4 dB \text{ spl} / 1 mW at 1 kHz$
	♦ 300, 800, 1k, 2k, 3k Hz Measurement point
SPL Difference between Lch	Within 2 dB at 1KHz
Cross talk Rx =>	Mic output(average 300Hz to 3400Hz) should be less than -
	85dBV when there is an input of −35dBV on the receiver.

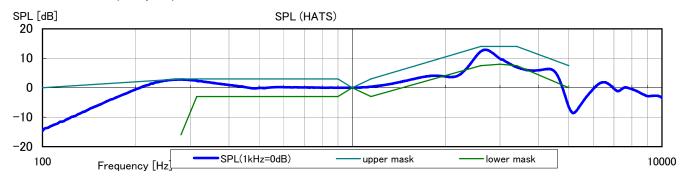
Frequency response coupler



Relative frequency response mask <0dB at 1kHz =89dBSPL>

Frequecy	100	180	230	270	900	1000	1100	2000	2300	2600	2800	4200	5000
UPPER LIMIT	4	_	_	8	3	0	3	2	11	14.5	_	_	10
LOWER LIMIT	-	-14	0	2	-3	0	-3	-4.5	-3	-	7.5	5	-

<REFERENCE> Frequency response_HATS



Relative frequency response mask <0dB at 1kHz = 96dBspl> Narrow Band

Frequecy	100	200	280	315	900	1000	1150	2600	3000	3400	5000
UPPER LIMIT	0	2	3	-	3	0	3	14	-	14	7.5
LOWER LIMIT	-	_	-16	-3	-3	0	-3	7.5	8	7.5	0

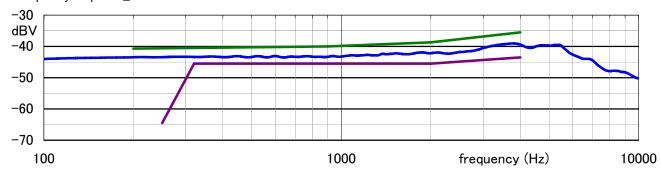
4	Earpiece Frequency Response revised	20060730 F-NKT	CUSTOMER	HS-47&48&49	
3	Cross talk, SPL Difference added, TBD deleted	20060126 F-NKT	NAME	113-47 840849	
2	Earpiece Frequency Response revised	20060116 F-NKT	MAIN	434309/434310/436363	
1	DRAFT	20050808 F-NKT	FOSTER No.	434309/434310/436363	
ISSUE	REVISIONS	DATE NAME	DOCUMENT	S5000634	
DATE	20050913 20050913 20050913 20050913		No.	3000034	
NAME	F-NKT F-SMK F-SMK F-MOG		SHEET No	3/25	
	DEGN. DRAW CHK. APVD		DITEL I NO	3/ 23	

SPECIFICATIONS

MICROPHONE FREQUENCY RESPONSE

TYPE	ELECTRET
OUTPUT IMPEDANCE	$2k\Omega+0\%/-30\%$ at $1kHz$
DIRECTIVITY	OMNI
FREQUENCY MASK RANGE	200Hz∼5kHz
OUTPUT LEVEL	HATS -55.5dBV ± 4dBV at 1kHz
	$1 \text{m}/0.5 \text{m}$ -42.5dBV \pm 4dBV at 1kHz
	Bias Voltage 2.1V, RL=2.2k Ω , Bias current Max 400 μ A

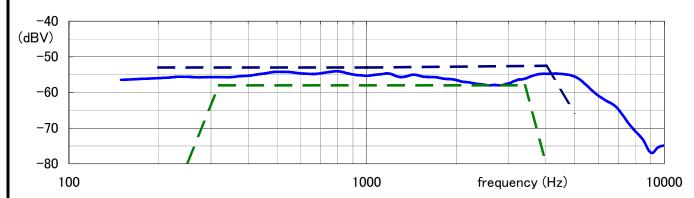
Frequency response_1m / 0.5m



Relative frequency response mask <0dB at 1kHz = -42.5dBV

Frequency	200	250	320	900	1000	2000	4000	[Hz]
UPPER LIMIT	1.8	-	-	2.5	_	3.8	7	[dB]
LOWER LIMIT	-	-22	-3	-	_	-3	-1	

<REFERENCE> Frequency response HATS



Relative frequency response mask <0dB at 1kHz = -55.5dBV>

Frequency	200	250	320	1000	3400	4000	5000	[Hz]
UPPER LIMIT	2.5	-	-	2.5	_	3	-10	[dB]
LOWER LIMIT	-	-24	-2.5	-	-2.5	-24	-	

3	Output Impedance revised, TBD deleted	20060126	F-NKT	CUSTOMER NAME	HS-47&48&49
2	Microphone Frequency Response revised	20060116	F-NKT	MAIN	434309/434310/436363
1	DRAFT	20050808	F-NKT	FOSTER No.	434309/434310/430303
ISSUE	REVISIONS	DATE	NAME	DOCUMENT	S5000634
DATE	20050913 20050913 20050913 20050913			No.	33000034
NAME	F-NKT F-SMK F-SMK F-MOG			SHEET No.	4/25
	DEGN. DRAW CHK. APVD			STILLT NO.	4/23

		PACKAGE T	TEST					
No.	ITEMS	TEST CONDIT	IONS		ACCEPTANCE CRITERIA	LINE	000	INITIAL
	High humidity durability of product and sales package	Product shall be exposed in temperature humidity : 85% maintained for 72 hours		°C	No damage on product			
2.1.4.2	Compression endurance of sales packages	Static compression weight: 132kg *Correct test load will be calce following formula: $L = \left(\frac{(S-H)}{H}\right) *W*F$ L = the load the sample unit must with W = the gross weight of the individual S = the stacking height constant, 2.4m H = the height of sample, 0.2m F = compensating factor of three, 3 Duration: 1 hour This test must perform immediately at condition.	nstand sample unit า	andard	No damage on product			•
2.1.4.3	Vibration endurance of sales package	Face No . 3 : 30 minutes Face No . 1 : 10 minutes Face No . 2 or 4 : 10 minutes Face No . 5 or 6 : 10 minutes FACE 1 Break point Frequency(H Amp (g2/1	Hz) (db/Oc 0.0 -0.126x		No damage on product			
				MAIN				
	Ctti.		00000110 F NUT	CUSTOMER NAME	HS-47&48	&49		
	Static compression v DRAFT		20060113 F-NKT 20050913 F-NKT	FOSTER No.		/436	363	į
ISSUE DATE	20050913 20050913	REVISIONS 20050913 20050913	DATE NAME	DOCUMENT No.	S50006	34		
NAME	F-NKT F-OKY DEGN. DRAW	F-SMK F-MOG CHK. APVD		SHEET No	5/25			

	PACKAGE TEST								
No.	ITEMS	TEST CONDITIONS	ACCEPTANCE CRITERIA	LINE OQC INITIAL					
2.1.4.4	Drop endurance of sales package	Drop package at 76cm high to side of packages marked in following pictures and the test sequence. Sequence	No damage on product	•					
		MAIN							
		CUSTOMI NAME	HS-47&48	&49					
1 ISSUE	DRAFT	MAIN 20050913 F-NKT FOSTER							
DATE NAME	20050913 20050913 F-NKT F-OKY	20050913 20050913 No.	550006	34					
NAME	DEGN. DRAW	CHK. APVD SHEET I	6/25						

	MECHANICAL TEST								
No.	ITEMS	TEST CONDITIO	DNS		ACCEPTANCE CRITERIA	LINE	oac	INITIAL	
MEC 1.1	Random drop test	Drop t be performed manually. Impact surface to be consisted of 3mm *Random drop test is made manually dr *Then, Damp Heat Cyclic test to be pe condition: ENV 1.5 humidity endurance *At least 95% have to survive first 100	ropping 1.0m high rformed to 6 days)		No defect in function No crack and damage on outlook No loose parts			•	
MEC 1.3	Free fall test of product combinations (enhancement + phone)	* Free fall test is made manually dr	Orop to be performed manually. mpact surface to be consisted of concrete. Free fall test is made manually dropping 1.5m high. drops for accessory etc, side (1x3 drops)					•	
MEC 2.1	Mechanical functionality in operating temperature	ist mechanical functionalities (e.g. button, plugs, looking systems, inges etc.) to be checked. Then product shall be exposed in temperature chamber naintained +55°C for 2 hours. After reducing temperature to -30°C, product shall be exposed in the chamber for 2 hours. Product shall satisfy the mechanical functionalities. **RT: 20°C-25°C** Nechanical functionalities** Check point			No defect in function No crack and damage on outlook			•	
				MAIN CUSTOMER	HS-47&488	49			
2	R.T added DRAFT		20060126 F-NKT 20050913 F-NKT	MAIN FOSTER No.	434309/434310/	4363	363		
ISSUE DATE		REVISIONS	DATE NAME	DOCUMENT No.	S50006	34		\neg	
NAME	F-NKT F-OKY DEGN. DRAW	F-SMK F-MOG CHK. APVD		SHEET No	7/25				

	MECHANICAL TEST										
No.	ITEMS	TEST CONDITION	NS	ACCEPTANCE CRITERIA	LINE OQC INITIAL						
MEC 3.3	Wearing endurance of materials (PAT PRINTING POSITION) New wear particles Rösler Trough Vibrator	The trough of the test machine is filled we mixture(totally about 15\mathbb{L}): 3 parts of Rk and 1 part RKK 15P(green pyramids). Ne must be conditioned by running in the maliters of water for 4 hours. About 0.5 lite added after every 1/2 hours during the control of the particles should be replaced after a working hours. Testing The particles should be replaced after a working hours. Testing Testing The wear media must be wet before the whole test. Therefore 1\mathbb{L} water should be test and running the machines at the sar liters of Rosler detergent FC120 and water detergent for about 5\mathbb{L} water) is added the test. After that put the test product(s) the liters of water must be added after every the amount of products that can be test in the trough vibrator: Small accessories. Small accessories. 4–5 products Hedium accessories. Large accessories. 1 products	After 30min After 30min Water 0.5 L Water	sample is checked visually against the reference sample after the test. Reference sample: HS-5							
3	MEC 3.3 revised MEC 3.3 revised, ME	C 5.1 added 20	006013 F-NKT CUSTO 0060126 F-NKT NAI	MER HS-47&488	449						
2	MEC 3.3, 4.3, 5.2 rev		0060113 F-NKT MA 0050913 F-NKT FOSTE	IN 434309/434310	436363						
ISSUE		REVISIONS	DATE NAME DOCU	MENT \$50006	34						
DATE NAME	F-NKT F-OKY	20050913 20050913 F-SMK F-MOG	SHEE		-						

	MECHANICAL TEST								
No.	ITEMS	TEST CONDITIONS			ACCEPTANCE CRITERIA	LINE	oac	INITIAL	
MEC	Type label	Solvent Wearing Load (g) Whee None 500 CS-10 Isopropyl alcohol Gasoline 250 CS-10	Cycle 500 100		Bleeding of printing not to occur			•	
3.4	properties	*Apply type label on test plate and wa Then, place it into test chambers. *Remove type label after temp reache *Same test to be performed at +70°C	Checkered marking to remain on plate.						
MEC 4.3	System connector usage	test, the force and distance curve to be me *After checking wearing condition of mecha	In the beginning of the test, after every 500 cycles and after the est, the force and distance curve to be measured. After checking wearing condition of mechanical parts, put EUT ato damp heat cyclic test for 6 days. (See condition: ENV1.5 umidity endurance)					•	
MEC 5.1	Attachment of permanent and removable parts.	The product shall not expose small parts to the user. The potential risk of choking small parts caused by detachment of arts shall be minimized.			Assessment by using "Small parts cylinder" Small parts are not allowed to come loose too easily. (except for support ring)			•	
MEC 5.2	Pushing of product with fingers	*Push in test 50N pushing force applied 5 times (2second / 1time)			No defects in Function			•	
3	MEC 3.3 revised, ME	C 5.1 added 2006	0126 F-NKT	MAIN CUSTOMER NAME	HS-47&488	k49		_	
2	MEC 3.3, 4.3, 5.2 rev		0113 F-NKT	MAIN FOSTER No.	434309/434310/	436	363		
ISSUE DATE	20050913 20050913	REVISIONS DA 20050913 20050913		DOCUMENT No.	S50006	34			
NAME	F-NKT F-OKY DEGN. DRAW	F-SMK F-MOG CHK. APVD		SHEET No	9/25				

	MECHANICAL TEST									
No.	ITEMS	TEST CONDI	TIONS			ACCEPTANCE CRITERIA	LINE	OOC	INITIAL	
MEC 6.1	Audible noise	To check product makes no noise wh twisted in reasonable force.	nen product	is presse	ed or	No disturbing noise to occur			•	
MEC 7.1		*In beginning of the test, after every test the force and distance curve to be *After checking any possible damage put EUT into damp heat cyclic test	Pressings to be performed manually 70,000 cycles with 7N force. In beginning of the test, after every 10,000 cycles and after the est the force and distance curve to be measured. After checking any possible damage or inoperability, put EUT into damp heat cyclic test for 6 days (See condition: ENV1.5 humidity endurance)						•	
MEC 8.1		Clip open/close to be performed 6,00 *In beginning of the test and after th distance curve to be measured. *After checking mechanical degradat EUT into damp heat cyclic test for 6 (See condition: ENV1.5 humidity end *Then, after checking corrosion, perf fall test.	Spring force more than 80% from original			•				
MEC 8.2		Fahric tyne : cotton (thickness () /mm)				No injuries in fabric			•	
					MAIN CUSTOMER	HS-47&488	\$49			
2	MEC7.1, 8.1 revised		20060113	F-NKT	NAME MAIN	434309/434310		363	-	
1 ISSUE	DRAFT	REVISIONS	20050913 DATE	F-NKT NAME	FOSTER No.	\$50006			\dashv	
DATE NAME	20050913 20050913 F-NKT F-OKY DEGN. DRAW	20050913 20050913			No. SHEET No		- '		\dashv	

		MECHANICAL TEST				
No.	ITEMS	TEST CONDITIONS		ACCEPTANCE CRITERIA	LINE	INITIAL
MEC 9.1	Cable temperature test	*EUT shall be exposed in temperature chamber maintaine 15°C for 4 hours. *After raising temperature to room temperature. EUT shall be exposed in the camber for 4 hours. *Then after raising temperature further to +55°C. EUT shall be exposed in the camber for 4 hours. *Immediately after removing the EUT from the chamber would around the metal bar (d=10mm) 5times and stabilized 15min in room temperature.			•	
MEC 9.2	Cable max pull out test	*Measure pull out force of cable Pull out force : more than 40N Pull out speed : 10mm/min		No connection failure No open circuit		•
MEC	*Bending cable 6,000 cycles in ± 90°C loading the following weight at the end. 1±90°C cycle / sec *Housing side: 100g *Plug side: 200g					
9.3	Cable bending test (Bottom of mic case)	*Bending cable 1,500 cycles in ± 90°C (Reference) loadir following weight at the end. 1±90°C cycle / sec *Housing side: 100g *Plug side: 200g	No open circuit Strain relief not broken			
0	MEC 0.2	20000014 5 11/2	MAIN CUSTOMER	HS-47&488	49	
3 2	MEC 9.2 revised MEC 9.3 revised	20060614 F-NKT 20060113 F-NKT	NAME MAIN	434309/434310/	//363	63
1 ISSUE	DRAFT	20050913 F-NKT REVISIONS DATE NAME	FOSTER No.			
DATE		20050913 20050913	No.	S50006	34	
NAME	F-NKT F-OKY DEGN. DRAW	F-SMK F-MOG CHK. APVD	SHEET No	11/25		

No. ITEMS *Product shall be exposed in temperature chamber maintained at -15°C for 16hours. *After reducing temperature further to -40°C, product be exposed in the chamber for 4 hours. RT: 20°C-25°C Cold usage *Cold usage *Cold usage *Acceptance Criteria No defect in function (-15°C) No damage of outlook (-15°C) Intermitted function (-40°C)	C)	000	• INITIAL
maintained at -15°C for 16hours. *After reducing temperature further to -40°C, product be exposed in the chamber for 4 hours. RT: 20°C-25°C Cold usage No defect in function (-15°C) No damage of outlook (-15°C) Intermitted	>)		•
*After raising temperature to room temperature, product shall satisfy the performance and function.			
*Product shall be exposed in temperature chamber maintained +55°C for16 hours. *After raising temperature further to +70°C, product shall be exposed in the chamber for 2 hours. *Then, after raising temperature further to +85°C, product shall be exposed in the chamber for 4 hours. *After reducing to room temperature, product shall satisfy the performance and function. *After reducing to room temperature, product shall satisfy the performance and function. *Then, after raising temperature further to +85°C, product shall be exposed in the chamber for 4 hours. *After reducing to room temperature, product shall satisfy the performance and function. *Then, after raising temperature further to +85°C, product shall be exposed in the chamber for 4 hours. *After reducing to room temperature, product shall satisfy the performance and function. *Then, after raising temperature further to +85°C, product shall be exposed in the chamber for 4 hours. *After reducing to room temperature, product shall satisfy the performance (+85°C) *Then, after raising temperature further to +85°C, product shall be exposed in the chamber for 4 hours. *After reducing to room temperature, product shall satisfy the performance (+85°C)	>)		•
CUSTOMER HS-476	48&49	<u> </u>	_
2 R.T added 20060126 F-NKT MAIN 1 DRAFT 20050913 F-NKT FOSTER No. 434309/434	10/436	363	}
ISSUE REVISIONS DATE NAME DOCUMENT No. S500)634		
NAME F-NKT F-OKY F-SMK F-MOG SHEET No 12,000			

	ENVIRONMENTAL TEST								
No.	ITEMS	TEST CONDITIO	NS		ACCEPTANCE CRITERIA	LINE	OGC		
ENV 1.3	Thermal shock durability	*Rapidly reducing temperature to -40°C in temperature chamber for 2 hours. *After rapidly reducing temperature to exposed in temperature chamber for 2 hours. *A series of the test shall be repeated and the series of the test shall be repeated and series and function. *After 2 hours recovery time, product series and function.	+85°C, product shanours. 5 cycles. Shall satisfy the	all be	No defect in function No defect in outlook		•		
ENV 1.4	Surface temperature test	All features are on (charging, connection temperature. 30min	ons etc.) at +25°C	C ambient	Surface temperature of product shall be under +50°C for plastics and +42°C for metal materials.		•		
				MAIN CUSTOMER	HS-47&488	£49			
2	R.T added		0060126 F-NKT	NAME MAIN	434309/434310/		63		
1 ISSUE	DRAFT	REVISIONS 2	0050913 F-NKT DATE NAME	FOSTER No.	S50006				
DATE NAME	20050913 20050913 F-NKT F-OKY	20050913 20050913		No.		J 4			
	DEGN. DRAW	CHK. APVD		SHEET No	13/25				

	ENVIRONMENTAL TEST							
No.	ITEMS	TEST CONDITIONS		ACCEPTANCE CRITERIA	LINE OQC INITIAL			
ENV 1.5	Humidity endurance (damp heat cyclic)	6 cycles	3	No defect in function No defect in function				
2	R.H, R.T added	20000100 = 111/5	NAME MAIN	HS-47&488				
1 ISSUE	DRAFT	20050913 F-NKT FOS	STER No.	434309/434310/				
DATE		20050913 20050913 E-SMK E-MOC	No.	S50006	34			
NAME	F-NKT F-OKY DEGN. DRAW	F-SMK F-MOG SHI	EET No	14/25				

	ENVIRONMENTAL TEST								
No.	ITEMS	TEST CONDITIONS			ACCEPTANCE CRITERIA	LINE OQC INITIAL			
1 6	Condensing humidity endurance	4 EUT will be tested in horizontally (flat), 4 downward in 45° of horizontal line and 4 EU 45° of horizontal line. *After raising humidity/temperature to 90% product shall be exposed in the chamber fo *After reducing temperature to +10°C in 90°25min, product shall be exposed in the cham *Then, temperature shall be raised to +60° during 20min. *A series of the test shall be repeated 84 co *After 15 min recovery times, produperformance and function.	JT protector u /+60°C during r 30min. % humidity dui mber for 30min C in 90% humi sycles. act shall sa	upward in 15 min, ring n. dity	No defect in function No defect on outlook	•			
-NV	UV radiation endurance	*Test shall be performed according to JIS D0205. (Alternative test for IEC 60721-3-7 7K3) *Product shall be radiated 255 W/m ² in sunshine carbon ark chamber maintained at 63°Cfor 96 hours. *Product shall satisfy the outlook quality.			No remarkable defect on outlook	•			
				MAIN CUSTOMER	HS-47&488	k49			
	R.T added. ENV1.7 DRAFT	revised. 2006 2005		MAIN FOSTER No.	434309/434310	/436363			
ISSUE		REVISIONS DA 20050913 20050913		DOCUMENT No.	S50006	34			
NAME	F-NKT F-OKY DEGN. DRAW	F-SMK F-MOG CHK. APVD		SHEET No					

		ENVIRONMENTA	AL TEST					
No.	ITEMS	TEST CONDITION	ONS		ACCEPTANCE CRITERIA	LINE	OGC	INITIAL
ENV 1.9	Rain endurance	Water flow 3+0.5mm/min Test1: The EUT are placed bottom co vertical line under the drip box. Test2: The EUT are placed bottom co horizontal line under the drip box. The EUT shall be tested 4 directions x 2.5mm = 10min/EUT each at Test 1 and Test 2. *After immediately for 1st EUT, 24h re and one week recovery time, product s performance and function.	15% of	No defect in function			•	
ENV 2.0	Dust endurance	*Product shall be exposed under the cement power, "Fine", classification J sprayed for 5 sec, and interval for 15 n *After brushing dust off, product shall function. (Alternative test for IEC60529, IEC607	:/ m ³ dust hours.	No defect in function			•	
ENV 2.1	Salt mist education	*Product shall be sprayed salt mist of chamber maintained at +35°C for 2 hou *Then, product shall be exposed in the 168 hours. *After wiping salt mist out and 2 hours shall satisfy the performance and function	40°Cfor	No defect in function			•	
ENV 2.2	Chemical endurance	Test to be performed for only plastic a *Apply small amount of the following states: *Clean up it by wet cloth after 24 hour 1) Isopropyl alcohol 2) Gasoline 3) NaCI, Nivea hand cream, Sun bloc		No measurable change allowed			•	
ENV 2.3	External vibration durability	Product shall be tested under the follo repeated the test in all 3 axes. 3 directions x 20 min - 5-10Hz: +10dB / Octave - 10-50Hz: 5.58m²/S ₃ (0.0558g ₂) - 50-300Hz: -10dB / Octave and 6,000 bumps of 20mg 3x2,000	and	No defect in function			•	
			HS-47&48&49					
	ENV 2.0 revised DRAFT	MAIN FOSTER No.	434309/434310/436363			ヿ		
ISSUE DATE		REVISIONS 20050913 20050913	20050913 F-NKT DATE NAME	DOCUMENT No.				ヿ
NAME	F-NKT F-OKY DEGN. DRAW	F-SMK F-MOG CHK. APVD		SHEET No	16/25			\dashv

		LIFE TE	ST			
No.	ITEMS	TEST CONDIT	TONS		ACCEPTANCE CRITERIA	LINE OQC INITIAL
LIFE	Life Test	*Product shall be operated under the exposed in humidity/temperature cha Operation condition Input: Nokia mobile phone RN Output power: Music source / T (CD No.MC4004) volume: Maxim *After raising humidity/temperature thours, product shall be exposed in the chami functional check *The tests shall be repeated 10 cycle then removing product out of charbe performed. Random test drop condition Drop to be manually Impact surface to be consisted of (shore A60°), 3mm thick steel polywood combination. Random drop test is made manual *Function check *Again same series of test shall be resulted in the chamiland of the chamiland	M-146 The ventures best so um o 97% / +55°C during the chamber for 15 however the chamber for 15 however the chamber for 3 hours. In the chamber for 3 hours. In the chamber for 3 hours. In the chamber for 3 hours. In the chamber for 3 hours. In the chamber for 3 hours. In the chamber for 3 hours. In the chamber for 3 hours. In the chamber for 3 hours. In the chamber for 3 hours. In the chamber for 4 hours. In the chamber for 15 however for 3 hours. In the chamber for 15 however for 3 hours. In the chamber for 15 however for 3 hours. In the chamber for 15 however for 3 hours. In the chamber for 15 however for 3 hours. In the chamber for 15 however for 3 hours. In the chamber for 15 however for 3 hours. In the chamber for 4 hours. In the chamber for 15 however for 3 hours. In the chamber for 4 hours. In the chamber for 15 however for 3 hours. In the chamber for 4 hours. In the chamber for 5 hours. In the chamber f	election ng 3 nurs. nours, test shall matting k nigh Oh)	No defect in function No crack and damage on	•
				MAIN - CUSTOMER NAME	HS-47&488	£49
	R.H, R.T, RM-146 ad DRAFT	ded	20060126 F-NKT 20050913 F-NKT	MAIN FOSTER No.	434309/434310	/436363
ISSUE		REVISIONS 20050913 20050913	DATE NAME	DOCUMENT No.	S50006	34
NAME	F-NKT F-OKY DEGN. DRAW	F-SMK F-MOG CHK. APVD		SHEET No		

SPECIFICATIONS

EMC Specification

Name of Standard	Description
EN 301 489-1	ElectroMagnetic Compatibility and Radio spectrum matters(ERM); ElectroMagnetic Compatibility (EMC) Standard for radio equipment and Services; Part 1 Common technical requirements
EN 301 489-7	ElectroMagnetic Compatibility and Radio spectrum matters(ERM); ElectroMagnetic Compatibility (EMC) Standard for radio equipment and Services; Part 7 Specific conditions for mobile and portable radio and ancillary equipment of digital cellular radio telecommunication systems(GSM and DCS)
3GPP TS 51.010-1	Mobile Station (MS) conformance specifications; Part 1 : Conformance Specification : Clause 12.2 : Radiated spurious emissions

									MAIN CUSTOMER NAME	HS-47&48&49
									MAIN	434309/434310/436363
1	DRAFT						20060126	F-NKT	FOSTER No.	+3+303/+3+310/+30303
ISSUE			REVISIO	NS			DATE	NAME	DOCUMENT	S5000634
DATE	20060126 20060126 20060126 20060126								No.	3300034
NAME	F-NKT	F-OKY	F-SMK	F-MOG					SHEET No	18/25
\setminus	DEGN.	DRAW	CHK.	APVD					STILLT NO	16/25

		SAFET	Y						
No.	ITEMS	REQUIREME	NT			REFERENCE OF REQUIREMENT	LINE	OQC	INITIAL
SAFETY 3.1	Fire resistance	The product shall fulfill one of the 1.: If the product includes a powe LPS(see safety 2.1), a fire enclos flammable (metal, ceramics, glass according to table 4D in § 4.7 us 2.: If the product includes no pow fire enclosure is not needed, plass sufficient. PWB material shall be PWB material rated V-0. VTM-0, -1, -2 is considered to b 2 (IEC 60950-1, § 4.7.3.1). Reason: Inflaming of the product in case of a single fault. Assumption: A short circuit of the inflammable material.	etter) only, a B is , V-1, V-	Check plastic material used.			•		
	Acoustic shock- headset	above limit in headset operation in 1.: Limit without fault: maximum 118dB SPL at ERP. 2.: Limit with single fault: maximum Measured with HATS, please reference of the manual shall instruct the use high volume, not to use the head volume, and only to use approved Reason: Acoustic levels above the second of th	2.: Limit with single fault: maximum peak 129dB SPL at ERP. Measured with HATS, please refer to section 2.5 for HATS do The manual shall instruct the user not to listen long time with high volume, not to use the headset for long periods at high volume, and only to use approved accessory headsets. Reason: Acoustic levels above the limit might injure the head Assumption: In case of the single fault or abnormal operating						
SAFETY 512	Maximum sound pressure level for sound system equipment (Music)-Headset Sensitivity	This requirement is applicable for c) Headset or Headphone which is i music or similar from the sound s phone (with MP3 player or FM ra player, etc. 1: Limit without fault 94 dB level must not be exceede 75mV	Defined in EN50332-2:2003			•			
					MAIN CUSTOMER NAME	HS-47&488	49		
1	SAFETY 5.1 added DRAFT		20060810 20060126 DATE	F-NKT F-NKT NAME	MAIN FOSTER No.	434309/434310/	4363	363	,
ISSUE DATE	20060126 20060126	REVISIONS 20060126 20060126	DOCUMENT No.	S5000634					
NAME	F-NKT F-OKY DEGN. DRAW	F-SMK F-MOG CHK. APVD			SHEET No	19/25			

SPECIFICATIONS

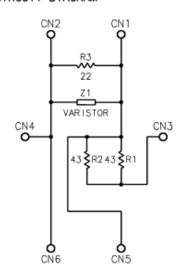
Controler SOLDER SIDE PARTS SIDE (10.6) (10.6) (10.6) (10.6) (10.6) (10.6) (10.6) (10.6) (10.6)

"PWB flammability rating shall be V0."

Earpiece



CIRCUIT DIAGRAM

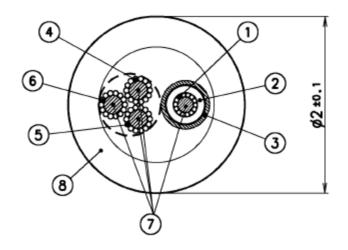


4	PWB Layo	ut revised					20060613	F-NKT	CUSTOMER	HS-47&48&49	
3	PWB flamr	PWB flammability rating added.							NAME	H3-47 040049	
2	PWB Layo	ut revised					20060113	F-NKT	MAIN	434309/434310/436363	
1	DRAFT						20060718	F-NKT	FOSTER No.	434309/434310/436363	
ISSUE			REVISIO	NS			DATE	NAME	DOCUMENT	S5000634	
DATE	20060718	20060718	20060718	20060718					No.	3300034	
NAME	F-NKT	F-OKY	F-SMK	F-MOG					SHEET No	20/25	
	DEGN.	DRAW	CHK.	APVD					SHEET NO	20/25	

SPECIFICATIONS

CABLE SPECIFICATION

HS-47 BLACK



NOTE)

1.THE FINISH OF THE APPEARANCE
AND COLORS DEPENDS ON AN ITEM
ON AUTHORIZATION SAMPLE.

規格 SPECIFICATION

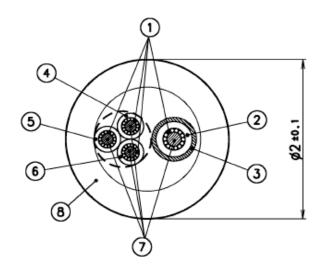
No.	名称	(NAME)	着色(COLORING)	仕様(MATERIAL)	仕様 (ASS'Y)						
0	芯線(導体)	CONDUCTIVE WIRE		——— ENAMEL COPPER WIRE 2UEW下, Ø0.05×14 STRANDS							
12	絕緣体	INSULATOR	WHITE	WHITE HYTREL PASS ROHS, \$0.40±0.05							
3	シールド	SHIELD		ENAMEL COPPER WIRE 1UEW, 0.05x20							
4	シールド 芯線 (導体) 芯線 (導体)	CONDUCTIVE WIRE	RED	2UEW下 Ø0.05×14 STRANDS	芯線 ④,⑤,⑥ と盛り合わせ						
(5)	芯線(導体)	CONDUCTIVE WIRE	TRANSPARENT (透明)	2UEW下 Ø0.05×14 STRANDS	TWIST PITCH : 10.0±5.0mm						
(6)	芯線(導体)	CONDUCTIVE WIRE	GREEN	2UEW下 Ø0.05×14 STRANDS	1#151 F11611 : 10.015.000						
\bigcirc	芯 糸	FILLERS		HIGH TENSION FIBER 200D							
8	外装シース	OUTER SHEATH	ELASTOMER(non-PV	ELASTOMER(non-PVC), BLACK, Ø2.0±0.1mm							

								CUSTOMER NAME	HS-47&48&49
								MAIN	434309/434310/436363
1	DRAFT					20060126	F-NKT	FOSTER No.	434309/434310/430303
ISSUE			REVISIO	NS		DATE	NAME	DOCUMENT	S5000634
DATE	20060126	20060126	20060126	20060126				No.	33000034
NAME	F-NKT	F-OKY	F-SMK	F-MOG				SHEET No	21/25
	DEGN.	DRAW	CHK.	APVD				OFFICE F NO	21/25

SPECIFICATIONS

CABLE SPECIFICATION

HS-47 WHITE



NOTE)

1.THE FINISH OF THE APPEARANCE
AND COLORS DEPENDS ON AN ITEM
ON AUTHORIZATION SAMPLE.

規格 SPECIFICATION

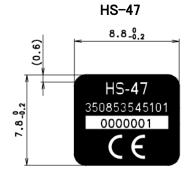
No.	名称	(NAME)	着色(COLORING)	仕様(MATERIAL) 仕様(ASS'Y)					
0	芯線(導体)	CONDUCTIVE WIRE		ENAMEL COPPER WIRE 2UEW, Ø0.05×14 STRANDS					
0	絕緣体	INSULATOR	WHITE	HYTREL PASS ROHS, Ø0.40±0.05					
3	シールド	SHIELD		ENAMEL COPPER WIRE 1UEW, 0.05x20					
4	絕緣体	INSULATOR	RED	HYTREL PASS ROHS, Ø0.40±0.05 芯線(4),⑤,⑥と鑑り合わせ					
(5)	絶縁体	INSULATOR	TRANSPARENT (透明)	HYTREL PASS ROHS, \$0.40±0.05 TWIST PITCH: 10.0±5,0mm					
(9)	絕緣体	INSULATOR	GREEN	HYTREL PASS ROHS, \$0.40±0.05					
(S)	芯糸	FILLERS		HIGH TENSION FIBER 200D					
8	外装シース	OUTER SHEATH	ELASTOMER(non-PVC), WHITE, Ø2.0±0.1mm						

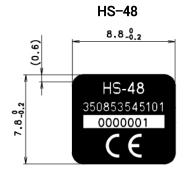
			CUSTOMER	HS-47&48&49
			NAME MAIN	434309/434310/436363
1	DRAFT	20060126 F-NK	T FOSTER No.	404000/404010/400000
ISSUE	REVISIONS	DATE NAMI	DOCUMENT	S5000634
DATE	20060126 20060126 20060126 20060126		No.	33000034
NAME	F-NKT F-OKY F-SMK F-MOG		—SHEET No	22/25
	DEGN. DRAW CHK. APVD		SHEET NO	22/23

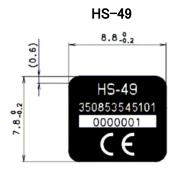
SPECIFICATIONS

TYPE LABEL, TAG LABEL

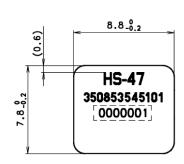
Type Label

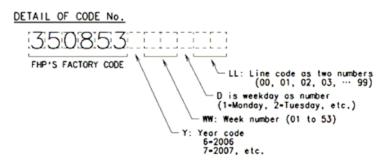






HS-47 white

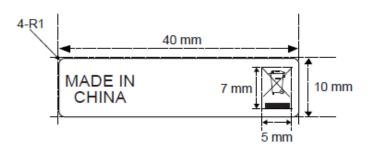




SSSSSS: The serial number will start at 0000001 on each day.

Tag Label





Chines

4-R1	4 0 mm	_
_	中国広州制造	10 mm

								CUSTOMER	HS-47&48&49	
3	Type Labe	l, Tag Labe	el revised			20060126	F-NKT	NAME	110-47 440449	
	Type Labe	l added				20060113	F-NKT	MAIN	434309/434310/436363	
1	DRAFT					20050913	F-NKT	FOSTER No.	454509/454510/456565	
ISSUE			REVISIO	NS		DATE	NAME	DOCUMENT	S5000634	
DATE	20050913	20050913	20050913	20050913				No.	3300034	
NAME	F-NKT	F-OKY	F-SMK	F-MOG				SHEET No	23/25	
	DEGN.	DRAW	CHK.	APVD				SHEET NO	23/23	

SPECIFICATIONS

EMC component and Main parts (HS-47 black/48/49)

Parts List v0.7

REF	FOSTER No.	FOSTER PARTS NAME	Qty	Type	1st Supplier Part name	1st Supplier name	2nd Supplier Part name	2nd Supplier name	EMC critical component	safety critical component	system/interface critical component
		HEADPHONE CAPSULE + SCREEN		Speaker unit	HEADPHONE CAPSULE				- Component	Component	v
		- PWB ASSY		PWB Assy (termi		IN HOUSE					
71	404811	- VARISTOR		Chip Varistor		TDK HONG KONG CO., LTD.			v		-
R3	419413	- RCHIP		Chip Resistor		KOA ELECTRONICS (HK) LTD.	(MCR01MZPJ220 T LF)	ROHM ELECTRONICS (HK) CO., L	v		-
	447258	PWB		PWB	1044-10 LF 1/200	SUZHOU HUAYANG ELECTRONICS CO.,	,	(, , , , , , , , , , , , , , , , , , ,	v		
R1.R2	447325	- RCHIP	4	Chip Resistor		KOA ELECTRONICS (HK) LTD.	(MCR03EZPJ430 T LF)	ROHM ELECTRONICS (HK) CO., L	v		
	439014	HOUSING	2	Housing		IN HOUSE	, ,				
	447214	HOUSING COVER	1	LOGO PLATE		IN HOUSE					
		HOUSING COVER	1	LOGO PLATE		IN HOUSE					
		SUPPORT RING	2	Elastomor Ring		Sanwa chemical ind.,CO.,LTD					
		FRONT CASE	1	Case Front		Lianiun					
		REAR CASE	1	Case Back		Lianjun					
		SEND/END BUTTON	1	Send/End Button		Lianiun					
	431089			Panel Plate		Lianjun					
	417887	SCREW/B TIGHT M1.4 Cr3		Screw		Tobon screw (Hong Kong)LTD					
		SPRING PIN		Shaft		Zhi wei industrial COLTD					$\overline{}$
	439362			Clip A		Lianiun					
	439363			Clip B		Lianiun					
		SPRING		Spring		Dong xu metal products					
		CORD ASSY FOR EARPIECE		System Cable		IN HOUSE					v
		CORD ASSY WITH PLUG (HS-47)		System Cable		IN HOUSE					v
	351602			4P Plug		SHEN MING INDUSTRIAL (HK) CO.					
		- INNER PLUG MOLD		PP		IN HOUSE					
		- OUTER PLUG MOLD		Elastomor		IN HOUSE					-
		- CORD FOR PLUG		Cable		LI MAO ULTRA FINE WIRES CO.,LTD.					
		CORD ASSY WITH PLUG (HS-48)	1	System Cable	<u> </u>	IN HOUSE					v
	028313			4P Plug		SHEN MING INDUSTRIAL (HK) CO.					
		- INNER PLUG MOLD		PP		IN HOUSE					
		- OUTER PLUG MOLD		Elastomor		IN HOUSE					
		- CORD FOR PLUG		Cable		LI MAO ULTRA FINE WIRES CO.,LTD.					
		CORD ASSY WITH PLUG (HS-49)		System Cable	 	IN HOUSE					v
		- PLUG		4P Plug		SHEN MING INDUSTRIAL (HK) CO.					
		- INNER PLUG MOLD		PP		IN HOUSE					
		- OUTER PLUG MOLD		Elastomor	 	IN HOUSE					+
		- CORD FOR PLUG		Cable		LI MAO ULTRA FINE WIRES CO.,LTD.					
		PWB ASSY		PWB Assy	 	IN HOUSE					+
		- PWB LF		PWB	 	SUZHOU HUAYANG ELECTRONICS CO., LTD)		v		+
ECM		- ECM UNIT		ECM	OBG 415P42-C1033 (R)	BSE coLtd	Ī		v		
R1		- RCHIP		Chip Resistor	RK73B1ETTP470J	KOA CORPORATION		ROHM Co.,LTD	v		+
S1	388155	- TACT SWITCH LF		TACT SW	SKRMAAE010	ALPS ELECTRIC	1		v		+
V1		- VARISTOR		Chip Varistor	AVR-M1005C080MTAAB				v		+
L1,2		- L CHIP		Ferrite Core	MMZ1005B-601-T	TDK Corporation			v		+
C1		CIPCERA R10 50V 102K T	1			MURATA Corporation	C1608C0G1H102JT	TDK Corporaton	v		+
-		INSULATION SHEET	1	Film	GRANTOOD THITOZR_D	DONGGUAN TARRY ELECTRONICS COLTD		Tork Corporation	v		+
		TAG LABEL	1	Label	 	Mae mae color printing CO., LTD	1		-		+
		TYPE LABEL (HS-47)	-	Label	 	Mae mae color printing CO., LTD					+
		TYPE LABEL (HS-48)	-	Label	 	Mae mae color printing CO., LTD					+
		TYPE LABEL (HS-49)	-	Label	 	Mae mae color printing CO., LTD					+
L	441723	III L LABEL (HO-48)	<u> </u>	Label	 	wae mae color printing CO., LTD					+

									CUSTOMER NAME	HS-47&48&49	
2	FOSTER F	Parts No. &	C1 revised	d			20060802	F-NKT	MAIN	434309/434310/436363	
1	DRAFT						20060613	F-NKT	FOSTER No.	434303/434310/430303	
ISSUE			REVISIO	NS			DATE	NAME	DOCUMENT	S5000634	
DATE	060613 060613 060613 060613								No.	3300034	
NAME	F-NKT	F-OKY	F-SMK	F-MOG					SHEET No.	24/25	
	DEGN.	DRAW	CHK.	APVD					SHEET NO.	24/23	

SPECIFICATIONS

EMC component and Main parts (HS-47white)

Parts List v0.7

REF	FOSTER No.	FOSTER PARTS NAME	Qty	Type	1st Supplier Part name	1st Supplier name	2nd Supplier Part name	2nd Supplier name	EMC critical component	safety critical component	system/interfac critical component
	447277	HEADPHONE CAPSULE + SCREEN		Speaker unit	HEADPHONE CAPSULE						v
	447401	- PWB ASSY	2	PWB Assy (termin	nal for driver unit)	IN HOUSE					
Z1	404811	- VARISTOR		Chip Varistor	AVR- M1005C080MTAAB	TDK HONG KONG CO., LTD.			v		
R3		- RCHIP	2	Chip Resistor	RK73B1ETTP220J T LF	KOA ELECTRONICS (HK) LTD.	(MCR01MZPJ220 T LF)	ROHM ELECTRONICS (HK) CO., L	v		
	447258			PWB	1044-10 LF 1/200	SUZHOU HUAYANG ELECTRONICS CO	, , , , , , , , , , , , , , , , , , , ,	, , , , , , , , , , , , , , , , , , , ,	v		
R1,R2	447325		4	Chip Resistor	RK73B1JTTD430J T LF	KOA ELECTRONICS (HK) LTD.	(MCR03EZPJ430 T LF)	ROHM ELECTRONICS (HK) CO., L	v		
		HOUSING	2	Housing		IN HOUSE	,	, , ,			
		HOUSING COVER	1	LOGO PLATE		IN HOUSE					
		HOUSING COVER	1	LOGO PLATE		IN HOUSE					
		SUPPORT RING		Elastomor Ring		Sanwa chemical indCOLTD					
		FRONT CASE		Case Front		Lianjun					†
		REAR CASE		Case Back		Lianjun					
		SEND/END BUTTON		Send/End Button		Lianjun					
	444346			Panel Plate		Lianiun					
		SCREW/B TIGHT M1.4 Cr3		Screw		Tobon screw (Hong Kong)LTD					
		SPRING PIN		Shaft		Zhi wei industrial COLTD					
	442009			Clip A		Lianiun					
	442010			Clip B		Lianiun					
		SPRING		Spring		Dong xu metal products					
		CORD ASSY FOR EARPIECE		System Cable		IN HOUSE					v
		CORD ASSY WITH PLUG		System Cable		IN HOUSE			v		
	351602			4P Plug		SHEN MING INDUSTRIAL (HK) CO.			-		+
		- INNER PLUG MOLD		PP		IN HOUSE					+
		- OUTER PLUG MOLD		Elastomor		IN HOUSE					
		- CORD FOR PLUG		Cable		LI MAO ULTRA FINE WIRES CO.,LTD.					
		PWB ASSY	1.00	PWB Assy		IN HOUSE					
		- PWB LF	 	PWB		SUZHOU HUAYANG ELECTRONICS CO., LTD			v		
ECM		- ECM UNIT		ECM	OBG 415P42-C1033 (R)		ĺ		v		
R1		- RCHIP		Chip Resistor	RK73B1ETTP470J	KOA CORPORATION		ROHM Co.,LTD	v	 	
S1		- TACT SWITCH LF		TACT SW		ALPS ELECTRIC		NOT IN CO., LTD	v		
V1		- VARISTOR			AVR-M1005C080MTAAB				v		
L1,2		- L CHIP		Ferrite Core	MMZ1005B-601-T	TDK Corporation			·		
01		CIPCERA R10 50V 102K T				MURATA Corporation	C1608C0G1H102JT	TDK Corporaton	v		
		INSULATION SHEET		Film		DONGGUAN TARRY ELECTRONICS CO.,LTD		Tork Corporation	v		
		TAG LABEL		Label		Mae mae color printing CO., LTD			V		+
		TYPE LABEL		Label		Mae mae color printing CO., LTD					
		EAR PAD (RED)		Ear pad (red)		SUN CARD DEVELOPMENT LTD					
		EAR PAD (RED)		Ear pad (red)	<u> </u>	SUN CARD DEVELOPMENT LTD					+
	440807	EAR FAD (GRAT)	-	car pad (gray)	-	SON CARD DEVELOPMENT LTD					

								MAIN - CUSTOMER NAME	HS-47&48&49	
2	FOSTER F	Parts No. &	C1 revised	d		20060802	F-NKT	MAIN	434309/434310/436363	
1	DRAFT					20060613	F-NKT	FOSTER No.	434309/434310/430303	
ISSUE			REVISIO	NS		DATE	NAME	DOCUMENT	S5000634	
DATE	060613	060613	060613	060613				No.	35000034	
NAME	F-NKT	F-OKY	F-SMK	F-MOG			_	SHEET No	25/25	
	DEGN.	DRAW	CHK.	APVD				SHEET NO	23/23	