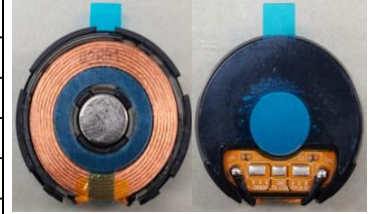


Customer	RF TECH	Date	2022. 11. 18
		Version	Rev. 00

0QA-2049

REQUEST FOR APPROVAL

제품명	Tx Module for Wireless Charger		Product Picture	
Part Number	F03010045			
Application Model	EP-OR900 Watch5 VE Coil Ass'y			
Specification	Inductance	11.1uH ± 7% @1V,100KHz		
	Rs_Resistance	140mΩ ± 20% @1V,100KHz		
	Rdc_Resistance	Max 100mΩ		
	Ass'y	Width	26.95 ± 0.15mm	
		Length	25.37 ± 0.15mm	
		Thickness	Max 4.9 mm	
Weight		7.4g±5%		



Customer		Drawing	Reviewer	Reviewer 2	Approver
RF TECH	Department / Name				
	Data				
	Sign				
Supplier		Drawing	Reviewer	Reviewer 2	Approver
Wits	Department / Name	Development Team S.J Kwon	Development Team D.M Moon	Development Team E.G Jung	Development Team Y.S Kang
	Data	2022. 11. 18	2022. 11. 18	2022. 11. 18	2022. 11. 18
	Sign				

MAKER	WITS CO., LTD		TEL	070-4925-9512
ADD	H.Q	35, hyungje-ro Namsa-myeon, Choin-gu, Yongin-si, Gyeonggi-do		
	Research Center	Floor 3, block B9, Maeyoung-ro, Yongtong-gu, Suwon-si, Gyeonggi-do		
	Factroy	LOT CN7, DIEM THUY IP(A AREA), HONG TIEN COMMUNE, PHO YEN TOWN, THAI NGUYEN PROVINCE, VIETNAM 24709		

35, Hyungje-ro Namsa-myeon, Choin-gu, Yongin-si, Gyeonggi-do
 TEL : 070-4925-9512 , FAX : 070-4925-9699

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- 2. Product Specifications
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 - 2.3 Coil Spec
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 - 2.5 PARTLIST
 - 2.6 Detail drawing
 - 2. 6. 1 Alpha Coil
 - 2. 6. 2 Ferrite
 - 2. 6. 3 Bracket
 - 2. 6. 4 FPCB
 - 2. 6. 4 FPCB
 - 2. 6. 5 Ferrite Tape
 - 2. 6. 6 Bracket Tape
 - 2. 6. 7 Coil Tape
 - 2. 6. 8 Lower Tape
 - 2. 6. 9 Magnet
 - 2. 6. 10 Magnet Plate Tape
 - 2. 6. 11 Magnet Plate

Part Number : F03010045

Application Model : EP-OR900 Watch5 VE Coil Ass'y



Request For Approval History Of Revision

Rev. NO.	Date	Contents	Page	Etc
Rev. 00	2022. 11. 18	INITIAL RELEASE	-	

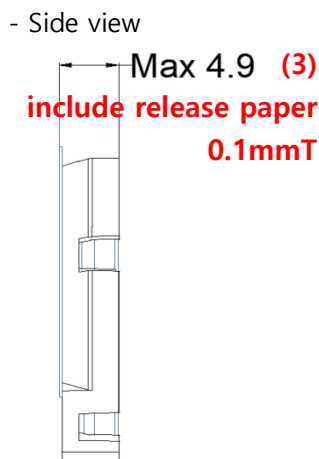
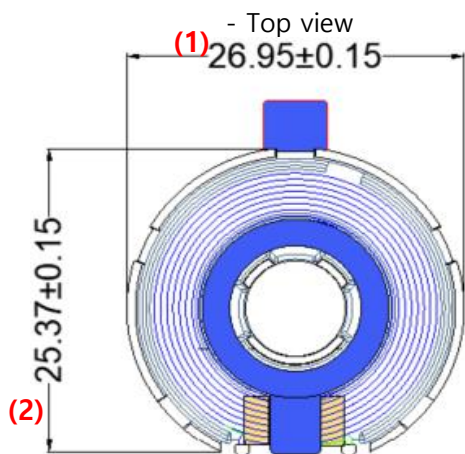
Part Number : F03010045

Application Model : EP-OR900 Watch5 VE Coil Ass'y



2. Product Specifications

2. 1 Drawing

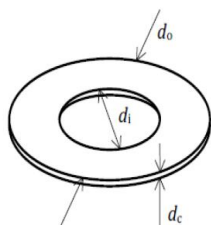


2. 2 Product Electrical Specifications

Category	Measurement item		Spec
CTQ	 mechanical Characteristic	(1)	Width $26.95 \pm 0.15 \text{ mm}$
		(2)	Length $25.37 \pm 0.15 \text{ mm}$
		(3)	Thickness Max 4.9 mm
CTQ	 electrical Characteristic	L (Inductance) $11.1\mu\text{H} \pm 7\% @1\text{V},100\text{KHz}$	
		Rs_Resistance $140\text{m}\Omega \pm 20\% @1\text{V},100\text{KHz}$	
		Rdc_Resistance Max 100mΩ	

- LCR Meter - 1) Tong Hui TH2837LX (@ 1V, 100kHz)
- 2) HIOKI LCR Meter (@ 1V, 100kHz)

2. 3 Coil Spec(Alpha Coil)



Parameter	Symbol	Value
Outer Diameter	d_o	$22.6 \pm 0.5 \text{ mm}$
Inner Diameter	d_i	$15.5 + 0.3 / - 0.1 \text{ mm}$
Thickness	d_c	$1.45 \pm 0.1 \text{ mm}$
Number of Turns	N	14 (Top : 7T / Bot 7T)
Number of Layers	-	2 Layer

Part Number : F03010045

Application Model : EP-OR900 Watch5 VE Coil Ass'y



2. 4 LOT Number Notation

Lot : W 2 B 18

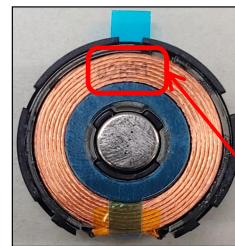
(1) (2) (3) (4)

(1) Wits

(2) Production Year : Last digit of production year (ex,2022 : 2)

(3) Production Month : 1~9, A, B, C (Oct : A, Nov : B, Dec : C)

(4) Production Day : 01~31



W2B18

normal	unrecognized product	rework

※ Check Marking Status

- Products that have entered the marking area are good.
- Check if the marking information is abnormal and whether the text can be visually recognized

※ Marking rework

- Proceed with rework for products whose marking recognition is not possible.
- During rework, marking proceeds except for the 1st marking area.

2. 6 Area Of Production

(1) Wits(Vietnam Factory) : LOT CN7, DIEM THUY IP(A AREA), HONG TIEN COMMUNE,
PHO YEN TOWN, THAI NGUYEN PROVINCE, VIETNAM 24709

Part Number : F03010045

Application Model : EP-OR900 Watch5 VE Coil Ass'y



2. 5 Parts List

No.	Part Code	Descriptoin	Specification	Q'ty	Vender	Harmful Substances
1		Litz Wire	0.05x105 Strands, Litz Wire	1EA	ELEKTRISOLA TRANSMO HENG TA	Pass
2		anti-loosening tape	PI Tape Thickness 20 μ m ,Width 4.0mm	12mm	NIUPAI	Pass
3		anti-loosening tape	PI Tape Thickness 20 μ m ,Width 8.0mm	8mm	NIUPAI	Pass
4		Tube	HF Heat Shrinkable Tube ID: Φ 1.0mm,300V,Black Length 5.0mm	2EA	한경컴포넌트 Woer	Pass
5		Ferrite	Mn-Zn Φ 25.13x2.89mmT	1EA	Hualin Dongyangguang KRY Lizzer	Pass
6		Bracket	PC / Φ 26.95x4.5mmT	1EA	JNT	Pass
7		FPCB	FPCB / 1.0 Oz / Au Plating REV0.3 / 19.1x6.45x0.15mmT	1EA	멀티텍 LIM	Pass
8		Chip Capacitor	1005 Chip Capacitor 1.5nF, 50V, 10%, X7R	2EA	Murata Taiyo-yuden SEM Samhwa	Pass
9		Coil Tape	KW-5100F Φ 21.5x Φ 16.5x0.1mmT	1EA	K-WON	Pass
10		Bracket Tape	KW-5150F 22.32x17.36x0.3mmT	1EA	K-WON	Pass
11		Magnet Plate	SPCC / Φ 9.4x0.5mmT	1EA	삼흥하이텍	Pass
12		Magnet Plate Tape	AD100 Φ 9.0x Φ 2.0x0.1mmT	1EA	애니원	Pass
13		MAGNET	Nd-Fe-B N52M Φ 7.8x3.6mmT	1EA	대한특수금속 Huizhou Ciyuan 노바텍	Pass
14		Tape Lower	93020LE Φ 24.6x0.2mmT	1EA	3M	Pass
15		Ferrite Tape	KW-5150F Φ 14.93x Φ 10.50x0.3mmT	1EA	K-WON	Pass
16		Wire Solder	HSE-04 HGF32 SUPER Halogen-FREE , Φ 0.8mm	60mg	LT소재	Pass
17		Dipping Solder	Lead Free BarSolder	-	BNF Corp HONGTAI	Pass
18		Bond	AF06	0.07g	Bostik	Pass
19		Label Marking	V705-D / V410-D Marking Ink	-	VIDEOJET	Pass

Part Number : F03010045

Application Model : EP-OR900 Watch5 VE Coil Ass'y



2. 6 Detail drawing

2. 6. 1 Alpha Coil

CHANGED CONTENT				
Rev	Content	Drafted	Approved	Date
00	INITIAL RELEASE	S. J Kwon	E.G Jung	2021.12.20
01	Remove anti-loosening tape	S. J Kwon	E.G Jung	2021.12.27
02	Change lead length. (11.0mm → 8.0mm)	S. J Kwon	E.G Jung	2022.02.23
03	Change lead spacing. (7.0mm → 9.0mm)	S. J Kwon	E.G Jung	2022.02.28
04	Change lead length. (7.0mm → 6.5mm) Change lead spacing. (9.0mm → 8.0mm)	S. J Kwon	E.G Jung	2022.03.10
05	Add 2 heat shrink tubing	S. J Kwon	E.G Jung	2022.03.17
06	Add anti-loosening tape	S. J Kwon	E.G Jung	2022.05.06

- MATERIAL INFORMATION

a. Wire Spec : 0.05 x 105 Strand Litz Wire

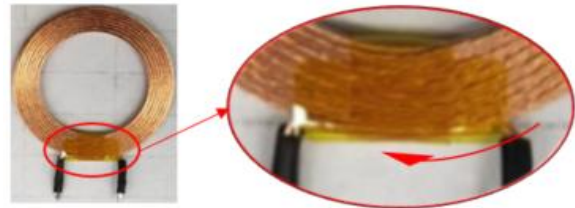
b. Thickness : 1.45mm ± 0.1mm

c. Turns : 14Turns

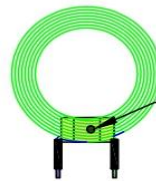
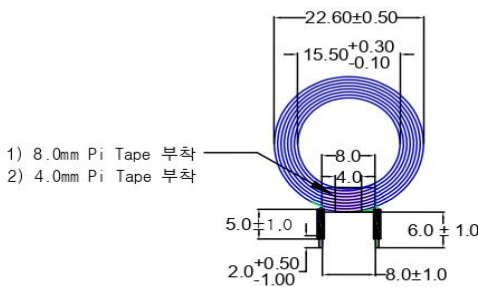
d. Measurement Location : Coil Size – Measure the width / length of the inner / outer diameter.
Coil Thickness – Measure the 2-Layer thickness of the winding coil.

e. Heat-Shrinkable Tubing : Φ1.0mm/0.6 – 5.0mm x 2EA

f. PI TAPE Thickness : 0.02mm (4x12mm / 8x8mm)



Upper Coil Winding Direction



Dot Mark
(Check coil direction)

CTQ / Thickness	
Coil inner diameter	Ø22.6±0.50mm
Coil outer diameter	Ø15.5 ±0.30/-0.1mm
coil thickness	1.45±0.1mm

Part List			Data 2021. 12. 20.			WITS		
ERP Code	SPEC	q'Ty	Approved Department					
			Approver			Alpha Coil		
			Reviewer					
			Drafter					
Stock Number			Department			Drawing Size		
			Scale 1/1			Drawing Number		
			Unit mm			A4		
			Weight			1 of 1		

Part Number : F03010045

Application Model : EP-OR900 Watch5 VE Coil Ass'y



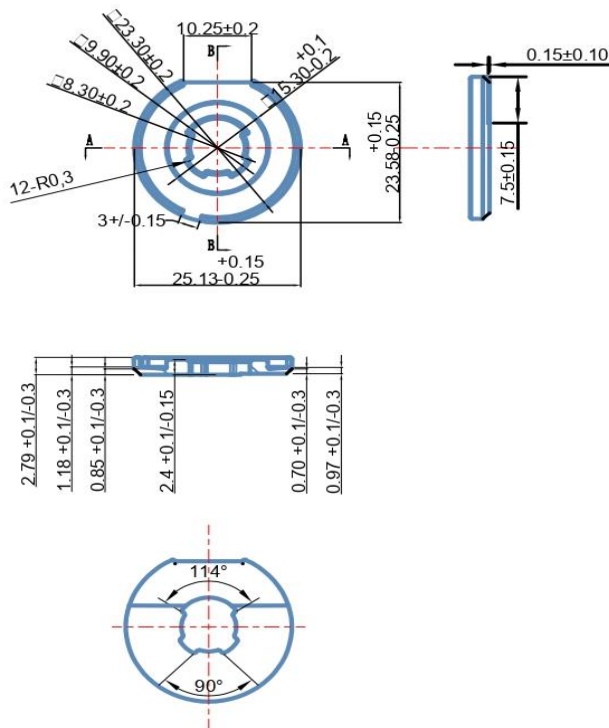
2. 6 Detail drawing

2. 6. 2 Ferrite

CHANGED CONTENT				
Rev	Content	Drafted	Approved	Date
00	INITIAL RELEASE	S. J Kwon	E.G Jung	2021.12.20
01	Delete top 0.7mm of Ferrite	S. J Kwon	E.G Jung	2021.12.28
02	Ferrite shape and size change	S. J Kwon	E.G Jung	2022.01.06
03	Ferrite shape and size change	S. J Kwon	E.G Jung	2022.01.19

- MATERIAL INFORMATION

- a. Material : Mn-Zn
- b. Thickness : 2.79 +0.1/-0.3
- c. Color : Dark Gray



Part List			Data 2021. 12. 20.			WITS		
ERP Code	SPEC	q'Ty	Approved Department					
			Approver			Ferrite Sheet		
			Reviewer					
			Drafter					
Stock Number			Department			Drawing Size		
			Scale 1/1 Unit mm Weight			Drawing Number		
						A4		
						1 of 1		

Part Number : F03010045

Application Model : EP-OR900 Watch5 VE Coil Ass'y

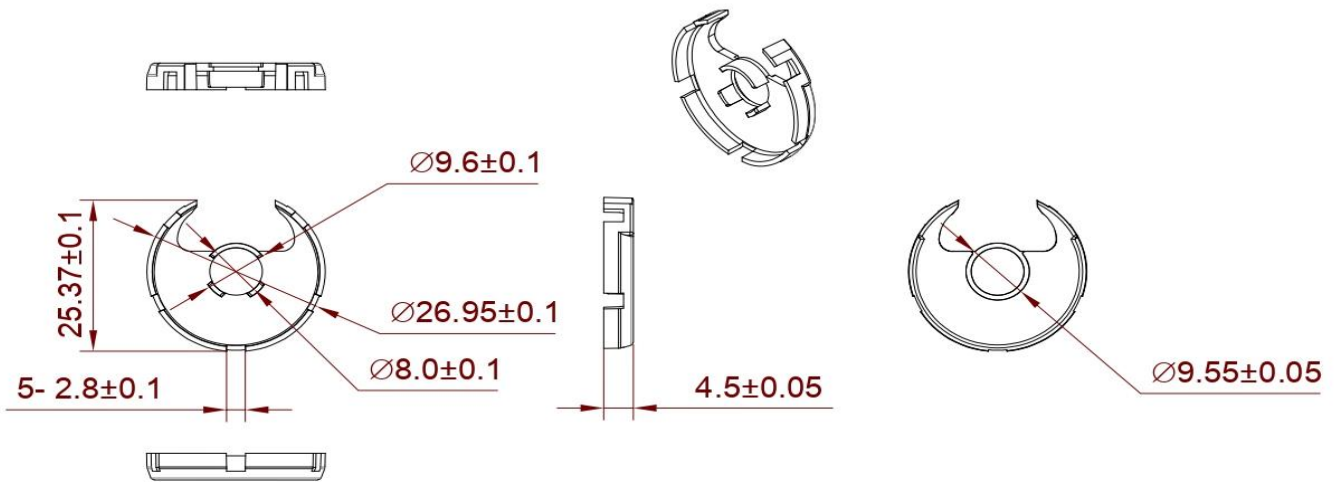


2. 6 Detail drawing
2. 6. 3 Bracket

CHANGED CONTENT				
Rev	Content	Drafted	Approved	Date
00	INITIAL RELEASE	S. J Kwon	E.G Jung	2022.01.19
01	1) Increased thickness of the PCB mounting part 2) Reducing the size of the bottom concave part	S. J Kwon	E.G Jung	2022.01.26
02	1) Delete the inner shape of the bracket 2) Addition of bracket C processing part thickness	S. J Kwon	E.G Jung	2022.02.19
03	Bracket material change (Zn → PC)	S. J Kwon	E.G Jung	2022.10.28

- MATERIAL INFORMATION

- a. Material : PC
- b. Thickness : 4.5 mm ± 0.03mm
- c. Tolerance of dimensions not indicated is 0.1mm.



Part List			Data 2022. 01. 19.			WITS	
ERP Code	SPEC	Q'ty	Approved Department				
			Approver			Bracket	
			Reviewer				
			Drafter				
Stock Number			Department			Drawing Size	Drawing Number
			Scale 1/1	Unit mm	Weight	A4	1 of 1

Part Number : F03010045

Application Model : EP-OR900 Watch5 VE Coil Ass'y



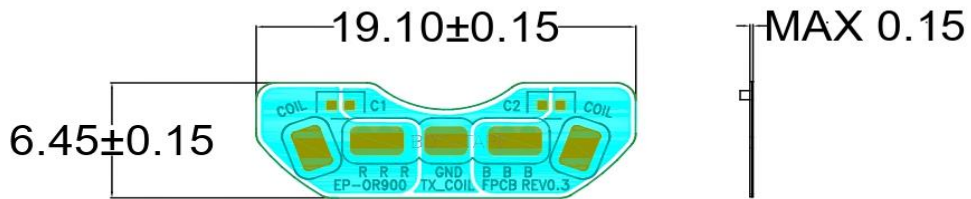
2. 6 Detail drawing

2. 6. 4 FPCB

CHANGED CONTENT				
Rev	Content	Drafted	Approved	Date
00	INITIAL RELEASE	S. J Kwon	E.G Jung	2021.12.20
01	Change PCB Material. (FR4 → FPCB)	S. J Kwon	E.G Jung	2022.01.19
02	PAD Change	S. J Kwon	E.G Jung	2022.03.11
03	R/B PAD Change	S. J Kwon	E.G Jung	2022.07.14

- MATERIAL INFORMATION

- a. MATERIAL : FPCB
- b. Revision : REV0.3
- c. THICKNESS : Max 0.15mmT(PCB Tape included.)
- d. Copper Thickness : 1.0 Oz
- e. PAD Plating : Gold(Au) Plating
- f. Silk Color : White
- g. Capacitor : 1.5nF, 50V, 10%, X7R, 1005(mm)



Part List			Data 2021. 12. 20.			WITS		
ERP Code	SPEC	q'Ty	Approved Department					
			Approver			FPCB		
			Reviewer			Drawing Size		
			Drafter			Drawing Number		
Stock Number			Department			A4		
			Scale 3/1	Unit mm	Weight	1 of 1		

Part Number : F03010045

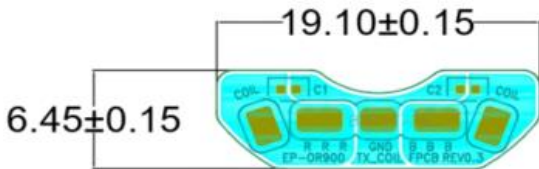
Application Model : EP-OR900 Watch5 VE Coil Ass'y



2. 6 Detail drawing
2. 6. 4 FPCB

EP-OR900 TX_COIL FPCB REV0.3

FPCB SPEC



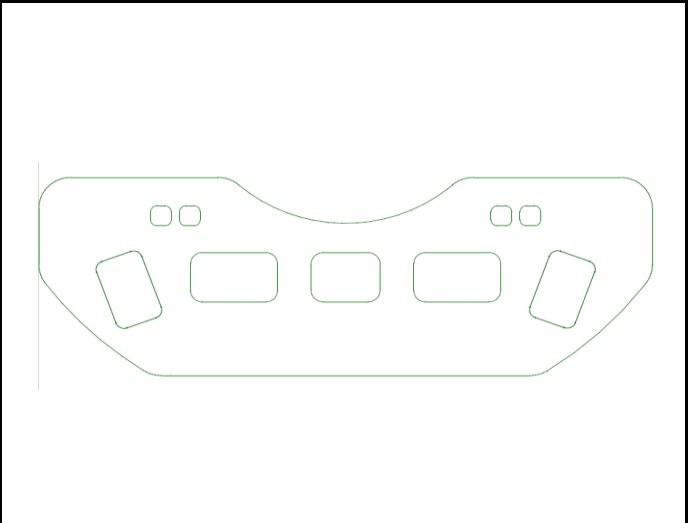
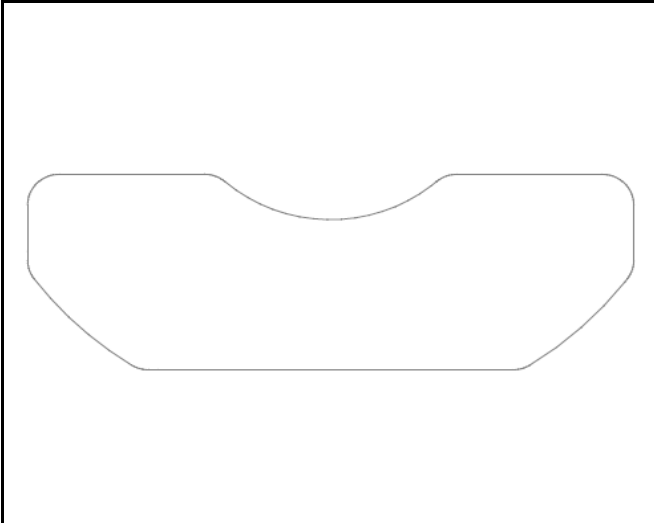
MAX 0.15

- MATERIAL INFORMATION

- a. MATERIAL : FPCB
- b. Revision : REV0.3
- c. THICKNESS : Max 0.15mmT(PCB Tape included.)
- d. Copper Thickness : 1.0 Oz
- e. PAD Plating : Gold(Au) Plating
- f. Silk Color : White
- g. Capacitor : 1.5nF, 50V, 10%, X7R, 1005(mm)

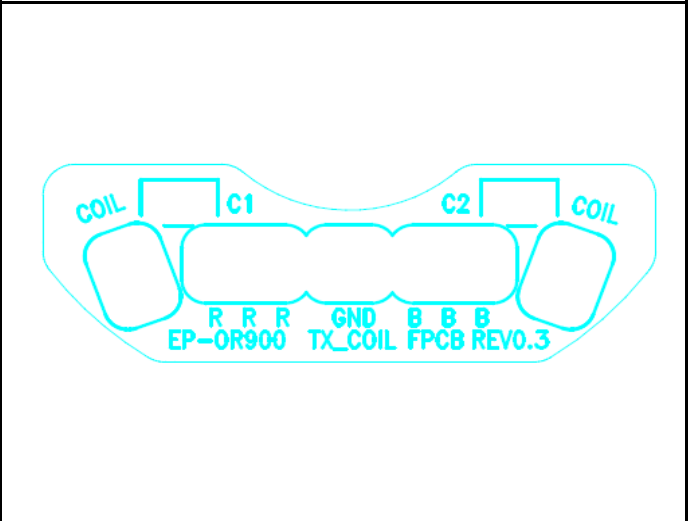
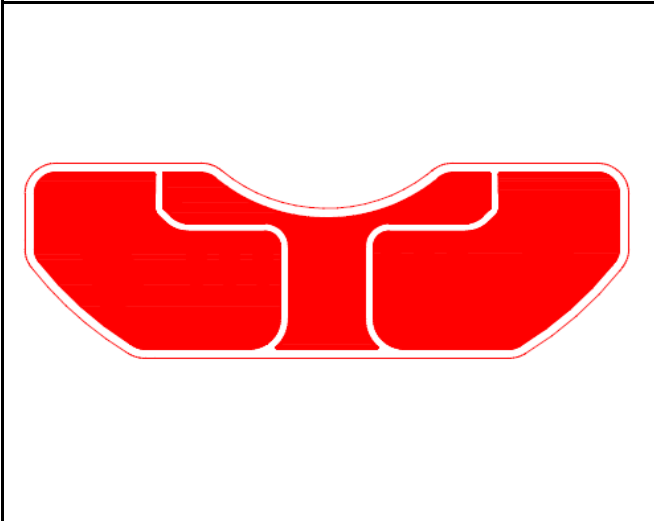
OUT

TOP-COV



TOP-PAT

TOP-SILK



Part Number : F03010045

Application Model : EP-OR900 Watch5 VE Coil Ass'y

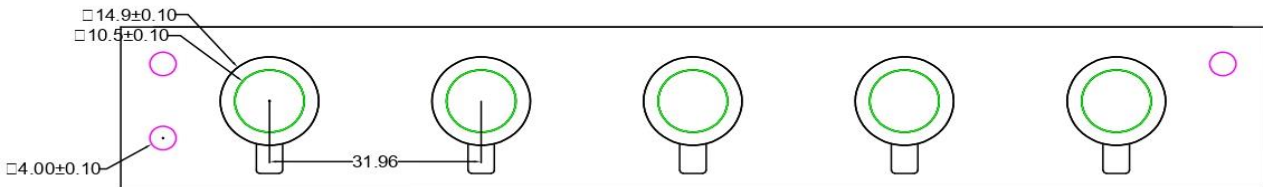
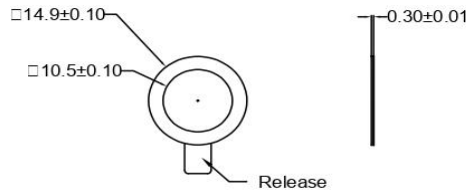


2. 6 Detail drawing
2. 6. 5 Ferrite Tape

CHANGED CONTENT				
Rev	Content	Drafted	Approved	Date
00	INITIAL RELEASE	S. J Kwon	E.G Jung	2022.01.19
01	Tape thickness change (0.2mmT → 0.3mmT)	S. J Kwon	E.G Jung	2022.03.24

- MATERIAL INFORMATION

- a. Material : KW-5150F
- b. Thickness : 0.3 ± 0.03 mmT
- c. Measurement Location : Size - Measure the width / length of the outer diameter.
Thickness - After removing release liner measure the thickness of the tape.



Based on the tape attachment surface

Part List			Data 2022. 01. 19.			WITS		
ERP Code	SPEC	q'Ty	Approved Department			Drawing Name		
			Approver			Ferrite Top Tape		
			Reviewer					
			Drafter					
Stock Number			Department			Drawing Size		Drawing Number
			Scale 1/1 Unit mm Weight			A4		1 of 1

Part Number : F03010045

Application Model : EP-OR900 Watch5 VE Coil Ass'y

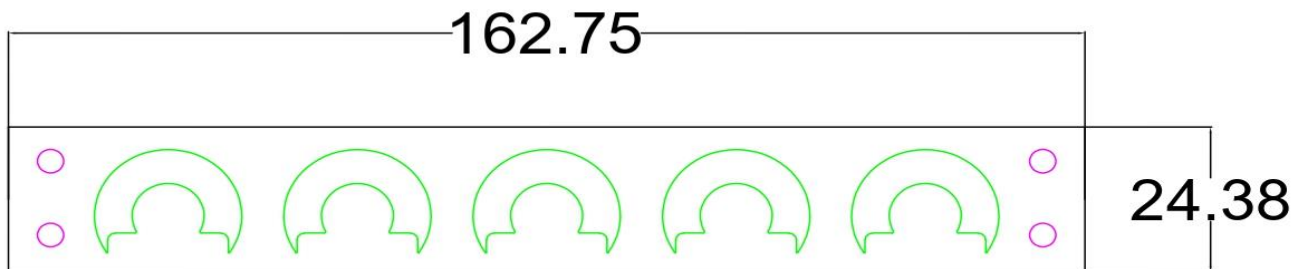
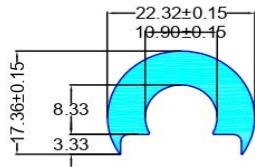


2. 6 Detail drawing
2. 6. 6 Bracket Tape

CHANGED CONTENT				
Rev	Content	Drafted	Approved	Date.
00	INITIAL RELEASE	S.J Kwon	E.G Jung	2022.03.16

- MATERIAL INFORMATION

- a. Material : KW-5150F
- c. Thickness : 0.3 ± 0.03 mmT
- d. Measurement Location : Size - Measure the width / length of the outer diameter.
Thickness - After removing release liner measure the thickness of the tape.



Part List			Data 2022. 03. 16.			WITS	
ERP Code	SPEC	Q'Ty	Approved Department				
						Bracket Tape	
						Drawing Size	Drawing Number
Stock Number						A4	1 of 1
			Scale 1/1	Unit mm	Weight		

Part Number : F03010045

Application Model : EP-OR900 Watch5 VE Coil Ass'y

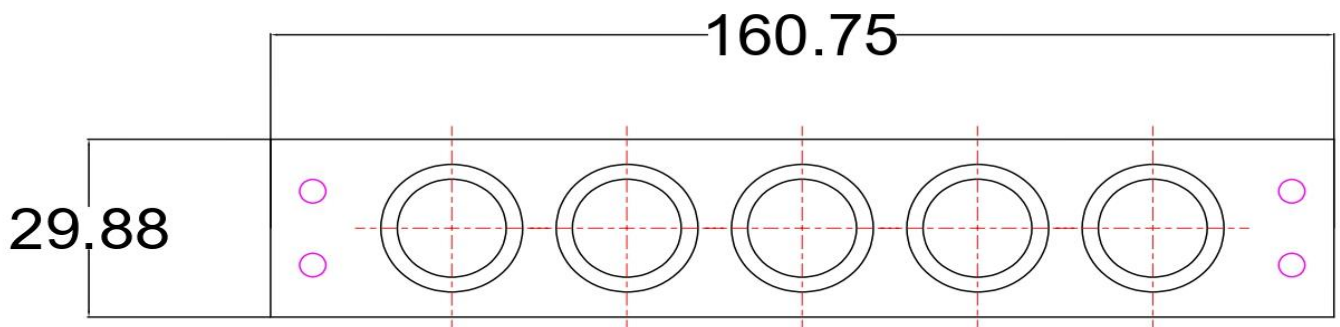
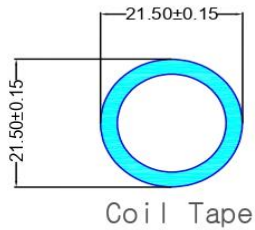


2. 6 Detail drawing
2. 6. 7 Coil Tape

CHANGED CONTENT				
Rev	Content	Drafted	Approved	Date.
00	INITIAL RELEASE	S.J Kwon	E.G Jung	2022.03.16

- MATERIAL INFORMATION

- a. Material : KW-5100F
- c. Thickness : 0.1 ± 0.01 mmT
- d. Measurement Location : Size - Measure the width / length of the outer diameter.
Thickness - After removing release liner measure the thickness of the tape.



Part List			Data 2022. 03. 16.			WITS		
ERP Code	SPEC	Q'Ty	Approved Department					
			Approver			Coil Tape		
			Reviewer					
			Drafter			Drawing Size		
Stock Number			Department			Drawing Number		
			Scale 1/1	Unit mm	Weight	A4		
						1 of 1		

Part Number : F03010045

Application Model : EP-OR900 Watch5 VE Coil Ass'y



2. 6 Detail drawing
2. 6. 8 Lower Tape

CHANGED CONTENT				
Rev	Content	Drafted	Approved	Date
00	INITIAL RELEASE	S. J Kwon	E.G Jung	2022.01.19
01	Add an offset to the lower part of the tape	S. J Kwon	E.G Jung	2022.01.26
02	Change the release paper handle size	S. J Kwon	E.G Jung	2022.03.10

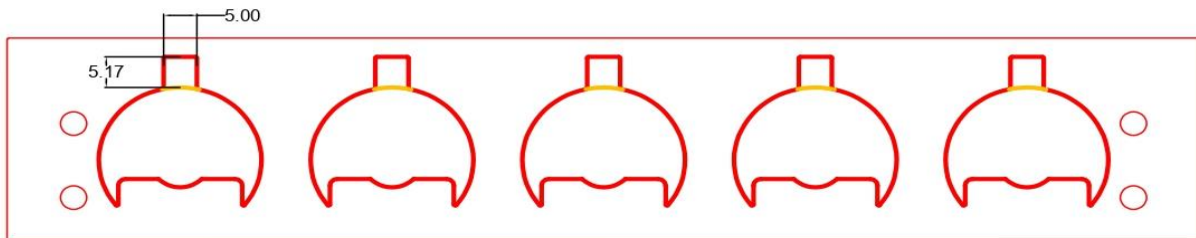
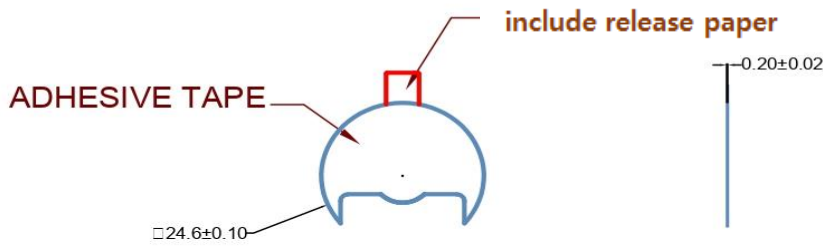
- MATERIAL INFORMATION

a. Material : 3M 93020LE

b. Thickness : $0.2 \pm 0.02 \text{mm}$

c. Measurement Location : Size - Measure the width / length of the outer diameter.

Thickness - After removing release liner measure the thickness of the tape.



Lower Tape Array

Part List			Data 2022. 01. 19.			WITS			
ERP Code	SPEC	q'Ty	Approved Department						Drawing Name
			Approver			Tape Lower			
			Reviewer						
			Drafter						
Stock Number			Department			Drawing Size	Drawing Number		
			Scale 1/1	Unit mm	Weight	A4	1 of 1		

Part Number : F03010045

Application Model : EP-OR900 Watch5 VE Coil Ass'y

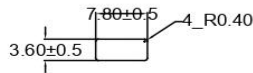


- 2. 6 Detail drawing
- 2. 6. 9 Magnet

CHANGED CONTENT				
Rev	Content	Drafted	Approved	Date.
00	INITIAL RELEASE	S.J Kwon	E.G Jung	2022.01.19

- MATERIAL INFORMATION

- a. Material : Nd-Fe-B(N52M)
- b. Thickness : 3.6±0.15mmT
- c. Measurement Location : Size - Measure the width / length of the outer diameter.
Thickness - Measure of Magnet thickness.



Part List			Data 2022. 01. 19.			WITS			
ERP Code	SPEC	Q'Ty	Approved Department						Drawing Name
						MAGNET			
Stock Number			Department			Drawing Size		Drawing Number	
						A4		1 of 1	
			Scale 1/1 Unit mm Weight						

Part Number : F03010045

Application Model : EP-OR900 Watch5 VE Coil Ass'y

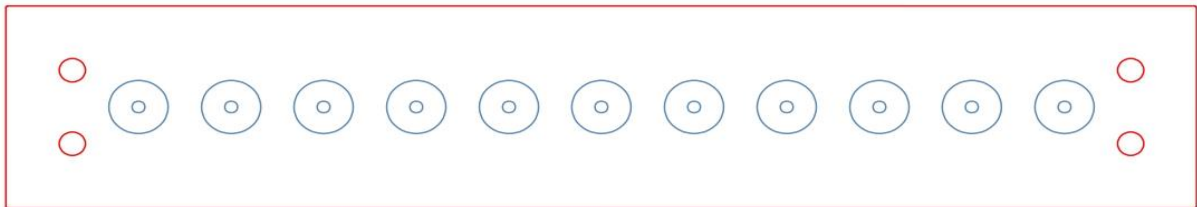
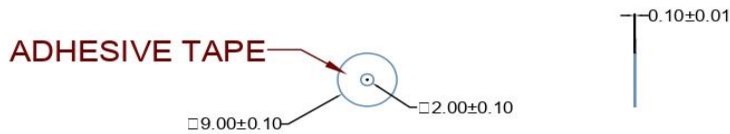


2. 6 Detail drawing
2. 6. 10 Magnet Plate Tape

CHANGED CONTENT				
Rev	Content	Drafted	Approved	Date.
00	INITIAL RELEASE	S. J Kwon	E. G Jung	2022.01.19

- MATERIAL INFORMATION

- a. Material : AD100
- b. Thickness : 0.1 ± 0.01 mmT
- c. Measurement Location : Size – Measure the width / length of the outer diameter.
Thickness – After removing release liner measure the thickness of the tape.



Part List			Data 2022. 01. 19.			WITS			
ERP Code	SPEC	q'Ty	Approved Department						Drawing Name
			Approver			Marnet Plate Tape			
			Reviewer						
			Drafter						
Stock Number			Department			Drawing Size		Drawing Number	
			Scale 1/1	Unit mm	Weight	A4		1 of 1	

Part Number : F03010045

Application Model : EP-OR900 Watch5 VE Coil Ass'y

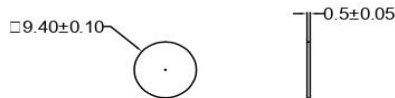


2. 6 Detail drawing
 2. 6. 11 Magnet Plate

CHANGED CONTENT				
Rev	Content	Drafted	Approved	Date.
00	INITIAL RELEASE	S.J Kwon	E.G Jung	2022.01.19

- MATERIAL INFORMATION

- a. Material : SPCC
- b. Thickness : 0.5 ± 0.05 mmT
- c. Measurement Location : Size – Measure the width / length of the outer diameter.
 Thickness – Measure of Magnet plate thickness.



Part List			Data 2022. 01. 19.			WITS			
ERP Code	SPEC	Q'Ty	Approved Department						Drawing Name
			Approver			Magnet Plate			
			Reviewer						
			Drafter						
Stock Number			Department			Drawing Size	Drawing Number		
			Scale 1/1	Unit mm	Weight	A4	1 of 1		