Industrial Services, Mobility and Transport,
Product Safety and Quality, Education and
Consulting, IT Services and Innovation

TÜVRheinland®
Precisely Right.

Young Town Enterprises Co., Ltd.
Ms. J. W. Wong
-
No. 26, Lane. 242,
Sec. 3, Zhong zheng Rd.,
Rende Dist., Tainan 717
Taiwan, R.O.C.

Date : 06.03.2012
Our ref. : TsaiNe ZTW1
Your ref.: 8867500170/GL010212

Ref : AE Certificate of Conformity EMC

Type of Equipment : Quartz Clock Movement & Clock
Model Designation : See Certificate
Certificate No. : AE 50223682 0001
Report No. : 10016980 004

Dear Ms. J. W. Wong,

Enclosed please find above certification documents.
Please forward these originals to the certificate holder.

If you contact our office, please quote our reference above.

We thank you for your cooperation.

The certificate holder is: Dongguan Young Town Electronics Co., Ltd.

With kind regards,

Certification Body

Albin Yang

Enclosure

TÜV RHEINLAND TAIWAN LTD.

11F., No. 758, Sec. 4, Bade Rd.,
Songshan Dist., Taipei City 105,
Taiwan (R. O. C.)
Tel. (02) 2172-7000
Fax (02) 2528-0018
http: //www.twn.tuv.com

TAICHUNG BRANCH:
No. 9, Lane 36 , Sec. 3, Minsheng Rd.,
Daya Township, Taichung County 428,
Taiwan R.O.C.
Tel. (04) 2560-2998
Fax (04) 2566-3598

KAOHSIUNG BRANCH:
33F-3, No. 80, Min Tzu 1st Rd.,
Kaohsiung 807, Taiwan, R.O.C.
Tel. (07) 380-1722
Fax (07) 380-1728

Industrial Services, Mobility and Transport,
Product Safety and Quality, Education and
Consulting, IT Services and Innovation

TÜVRheinland®
Precisely Right.

Dongguan Young Town Electronics
Co., Ltd.
Ms. Jin-Wang Weng
-
The Second Industrial Area
Hedong Jinxia Changan Town
Dongguan Dong
P.R. China

Date : 06.03.2012
Our ref. : TsaiNe ZTW1
Your ref.: 8867500170/GL010212

Ref : AE Certificate of Conformity EMC

Type of Equipment : Quartz Clock Movement & Clock
Model Designation : See Certificate
Certificate No. : AE 50223682 0001
Report No. : 10016980 004

Dear Ms. Jin-Wang Weng,

We herewith confirm that a sample of the above mentioned technical equipment has been tested and was found to be in accordance with the relevant requirements.

Enclosed please find your Certificate of Conformity and test report.

We appreciate your kind support and would like to offer our assistance and continuous services in the future.

With kind regards,

Certification Body

Albin Yang

CC: Young Town Enterprises Co., Ltd.

Enclosure

TÜV RHEINLAND TAIWAN LTD.

11F., No. 758, Sec. 4, Bade Rd.,
Songshan Dist., Taipei City 105,
Taiwan (R. O. C.)
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KAOHSIUNG BRANCH:
33F-3, No. 80, Min Tzu 1st Rd.,
Kaohsiung 807, Taiwan, R.O.C.
Tel. (07) 380-1722
Fax (07) 380-1728

C E R T I F I C A T E

of Conformity

EC Council Directive 2004/108/EC

Electromagnetic Compatibility

TÜVRheinland®

Registration No.: AE 50223682 0001

Report No.: 10016980 004

Holder:
Dongguan Young Town Electronics Co., Ltd.
The Second Industrial Area
Hedong Jinxia Changan Town
Dongguan Dong
P.R. China

Product: Clock, electrically driven
(Quartz Clock Movement & Clock)

Identification: see Appendix

Tested acc. to:
EN 61000-6-3:2007+A1
EN 61000-6-1:2007

This certificate of conformity is based on an evaluation of a sample of the above mentioned product. Technical Report and documentation are at the Licence Holder's disposal. This is to certify that the tested sample is in conformity with all provisions of Annex I of Council Directive 2004/108/EC. This certificate does not imply assessment of the production of the product and does not permit the use of a TÜV Rheinland mark of conformity. The holder of the certificate is authorized to use this certificate in connection with the EC declaration of conformity according to the a.m. Directive.

TÜV Rheinland LGA Products GmbH Zertifizierungsstelle TÜVRheinland®

Certification Body

Date 06.03.2012

Albin Yang

TÜV Rheinland LGA Products GmbH - Tillystraße 2 - 90431 Nürnberg

CE The CE marking may only be used if all relevant and effective EC Directives are complied with. CE

TÜV Rheinland Group

TÜVRheinland®

Appendix to TÜV Certificate of Conformity No.: AE 50223682 0001

Report number : 10016980 004
Kind of equipment : Quartz Clock Movement & Clock
Model Name : see below for details

Product Name : Quartz Clock Movement & Clock	Type Designation :
12888S SERIES	12888S, 12888SB, 12888SB1, 12888SB2, 12888SC, 12888SC1, 12888SC3-S, 12888SC5, 12888SA, 12888SA0, 12888SA1, 12888SA2, 12888SA5-S, 12888RS, 12888RSA0
12888SD SERIES	12888SD, 12888SDA, 12888SDH, 12888SDHA, 12888SDMC, 12888SDW, 12888SDWA
12888SE SERIES	12888SE, 12888SBE, 12888SB1E, 12888SB2E, 12888SC1E, 12888SC3E, 12888SC5E, 12888SCE, 12888SAE, 12888SA1E, 12888SA5E
12888SH SERIES	12888SH, 12888SHA, 12888SHB, 12888SHB1, 12888SHB2, 12888SHC1, 12888SHC, 12888SHE
12888SK SERIES	12888SK, 12888SCK, 12888SC1K, 12888SC3K, 12888SC5K, 12888SB2K, 12888SB1K, 12888SBK, 12888SA5K
12888SL SERIES	12888SL, 12888SAL, 12888SBL, 12888SB1L, 12888SB2L, 12888SC1L, 12888SCL
12888SM SERIES	12888SM0, 12888SM, 12888SMC1, 12888SMC, 12888SMW, 12888SMC5, 12888STM0, 12888STM, 12888STMC1, 12888STMC5, 12888STMC, 66LCD, 40LCD
12888S2M SERIES	12888S2M, 12888S2MC1, 12888S2MC5, 12888S2MC, 12888S2MB2, 12888S2MB, 12888S2MB1
12888ST SERIES	12888ST, 12888STB, 12888STB1, 12888STB2, 12888STC, 12888STC1, 12888STC3, 12888STC5, 12888STA, 12888STA0, 12888STA1, 12888STA2, 12888STA5, 12888STL, 12888STAL, 12888STB2L
12888SW SERIES	12888SW, 12888SAW, 12888SA0W, 12888SA1W, 12888SA2W, 12888SC1W, 12888SCW, 12888SW-D
12888W SERIES	12888W, 12888WA, 12888WT, 12888WTA
12888SWD SERIES	12888SWDA, 12888SWDB, 12888SWDC
12888SWK SERIES	12888SWK, 12888SWKC
12888SMP SERIES	12888SMP, 12888SMP-M, 12888SMP-SD, 12888SMP-SW, 12888SMP-SM, 12888SMP-C, 12888SMP-R, 12888SMP-MS, 12888SMP-MSTD, 12888SMP-MSTM, 12888SMP-MSTW, 12888SMP-MSHD, 12888SMP-MSHM, 12888SMP-MSHW
12888V1 SERIES	12888V1, 12888V3

TÜV Rheinland Group

TÜV Rheinland LGA Products GmbH Zertifizierungsstelle

TÜVRheinland®

Appendix to TÜV Certificate of Conformity No.: AE 50223682 0001

Report number : 10016980 004
Kind of equipment : Quartz Clock Movement & Clock
Model Name : see below for details

12888D2 SERIES	12888D2, 12888D2E, 12888D2ER, 12888D2R, 12888D2A, 12888D2A0, 12888D2A1, 12888D2B, 12888D2BR, 12888D2BE, 12888D2B1, 12888D2B2, 12888D2B2E, 12888D2B2R, 12888D2C, 12888D2CE, 12888D2CR, 12888D2C1, 12888D2C1R, 12888D2C1E, 12888D2C3, 12888D2C5, 12888D2C5E, ISK, ISL, ISX
12888D3 SERIES	12888D3, 12888D3E, 12888D3ER, 12888D3R, 12888D3A, 12888D3AR, 12888D3A0, 12888D3A1, 12888D3B, 12888D3BR, 12888D3BE, 12888D3B1, 12888D3B2, 12888D3B2E, 12888D3B2R, 12888D3C, 12888D3CE, 12888D3CR, 12888D3C1R, 12888D3C1, 12888D3C1E, 12888D3C3, 12888D3C5, 12888D3C5E
12888D5 SERIES	12888D5S, 12888D5B2 ,12888D5C1 ,12888D5C5 ,12888D5C, 12888D5M0, 12888D5MC1, 12888D5MC
12888DM3 SERIES	12888DM3, 12888DM3A,12888DM3B, 12888DM3B2, 12888DM3C, 12888DM3C1, 12888DM3C3, 12888DM3C5, 12888DM3AE, 12888DM3B2E, 12888DM3E, 12888DM3CE, 12888DM3C1E
12888DH SERIES	12888DH, 12888DH1, 12888DH2
12888DF SERIES	12888DF, 12888DF1, 12888DF2
12888MHH SERIES	12888MHH
12888MWD SERIES	12888MWD
12888MHD SERIES	12888MHD
12888R SERIES	12888R, 12888R1, 12888R2
12888P SERIES	12888P, 12888P0, 12888P1, 12888P2, 12888P4, 12888P5, 12888P1L
12888PT SERIES	12888PT, 12888PT0, 12888PT1, 12888PT2, 12888PT4, 12888PT5, 12888PTL
12888PK SERIES	12888PK, 12888PK0, 12888PK1, 12888PK2, 12888PK4, 12888PK5, 12888PK8, 12888PKL
12888PKS SERIES	12888PKS, 12888PKS0, 12888PKS1, 12888PKS4, 12888PKSL
12888PS SERIES	12888PS1, 12888PS1A, 12888PS1B, 12888PS1G, 12888PS1I, 12888PS2, 12888PS2A, 12888PS2B, 12888PS2I, 12888PS3, 12888PS3A, 12888PS3B, 12888PS3G, 12888PS3I
12888BT SERIES	12888BT, 12888BT0, 12888BT1, 12888BT3, 12888BT4, 12888BT5, 12888BT8
12888MA SERIES	12888MA, 12888MA0, 12888MA1, 12888MA2, MK-1, 12888M

TÜV Rheinland Group

TÜVRheinland®

Appendix to TÜV Certificate of Conformity No.: AE 50223682 0001

Report number : 10016980 004
Kind of equipment : Quartz Clock Movement & Clock
Model Name : see below for details

CLOCK SERIES	YT36, YT38, YT45, YT48, YT48A, YT48M, YT48M1, YT48M2, YT55, YT56, YT56A, YT56D, YT57M, YT64, YT65, YT65T, YT6565, YT68, YT68A, YT68D, YT69, YT70, YT70T, YT80, YT80A, YT80N, YT80H, YT82, YT82T, YT8464, YT85A, YT8565, YT90, YT90H, YT9974, YT115, YT120, YT120T, YT120A, YT130, YT150, YT160, YT200, YT230, YT300, YT430, YT500, YT90SD2A, YT90SD2B, YT90SD3A, YT90SD3B, YT90SD4, YT110SD2A, YT110SD3A, YT110SD3B, YT110SD4

Date: Mar. 06, 2012

TÜV Rheinland LGA Products GmbH TÜVRheinland Zertifizierungsstelle

Certification Body

Albin Yang

Produkte
Products

TÜVRheinland®

Prüfbericht - Nr.: *Test Report No.:*	**10016980 004**	**Seite 1 von 44** *Page 1 of 44*	
Auftraggeber: *Client:*	Dongguan Young Town Electronics Co., Ltd. The Second Industrial Area, Hedong Jinxia Changan Town, Dongguan Dond, P.R. China		
Gegenstand der Prüfung: *Test item:*	Quartz Clock Movement & Clock		
Bezeichnung: *Identification:*	Refer to Page 5 for details	**Serien-Nr.:** *Serial No.:*	N/A
Wareneingangs-Nr.: *Receipt No.:*	113153461	**Eingangsdatum:** *Date of receipt:*	2 Feb. 2012
Zustand des Prüfgegenstandes bei Anlieferung: *Condition of test item at delivery:*	Intact prototype samples.		
Prüfort: *Testing location:*	TÜV Rheinland Taiwan Ltd. 11F., No.758, Sec. 4, Bade Rd., Songshan Dist., Taipei City 105, Taiwan, R.O.C.		
Prüfgrundlage: *Test specification:*	EN 61000-6-3:2007+A1:2011 EN 61000-6-1:2007		
Prüfergebnis: *Test Result:*	**Der Prüfgegenstand entspricht oben genannter Prüfgrundlage(n).** *The test item passed the test specification(s).*		
Prüflaboratorium: *Testing Laboratory:*	TÜV Rheinland Taiwan Ltd. (Taipei)		

geprüft/ *tested by:*

05 Mar. 2012 Neil J. N. Tsai/Project Engineer (TÜV Rheinland Taiwan)

Datum *Date*	Name/Stellung *Name/Position*	Unterschrift *Signature*

kontrolliert/ *reviewed by:*

05 Mar. 2012 Max Y. C. Yao/Assistant Manager

Datum *Date*	Name/Stellung *Name/Position*	Unterschrift *Signature*

Sonstiges/ *Other Aspects:*

Abkürzungen:				*Abbreviations:*			
	P(ass)	=	*entspricht Prüfgrundlage*		*P(ass)*	=	*passed*
	F(ail)	=	*entspricht nicht Prüfgrundlage*		*F(ail)*	=	*failed*
	N/A	=	*nicht anwendbar*		*N/A*	=	*not applicable*
	N/T	=	*nicht getestet*		*N/T*	=	*not tested*

Content

1 Test Site

TÜV Rheinland Taiwan Ltd.
11F., No.758, Sec. 4, Bade Rd., Songshan Dist., Taipei City 105, Taiwan, R.O.C.

1.1 Measurement Uncertainty

Testing Item	Frequency Range	Uncertainty
Conducted Emission	150kHz - 30MHz	2.47 dB
Radiated Emission	30MHz - 1000MHz	2.8 dB

Note:
The uncertainty represents an expended uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

2 Description of the Test Sample

2.1 General Description of Equipment

The tested samples are **"Quartz Clock Movement & Clock"** with model numbers shown in below for additional approval. All models covered by this report, the electrical constructions are similar, except for appearances, mechanical design, gear ratio, position of screw, length of indicator and similar construction. Five representative models: **12888ST, 12888S, 12888PK, 12888SMP** and **12888BT8** were tested.

This report is also for change product name to **Quartz Clock Movement & Clock** form **Quartz Clock Movement** and to add an OEM license holder as table below. All models are identical to the existing models as covered by this report.

OEM License holder:	YOUNG TOWN ENTERPRIES CO., LTD.,
Address:	No.26, Lane. 242, Sec. 3, Zhong zheng Rd., Rende Dist., Tainan 717, Taiwan

All model numbers are listed below:

12888S SERIES	12888S, 12888SB, 12888SB1, 12888SB2, 12888SC, 12888SC1, 12888SC3-S, 12888SC5, 12888SA, 12888SA0, 12888SA1, 12888SA2, 12888SA5-S, 12888RS, 12888RSA0
12888SD SERIES	12888SD, 12888SDA, 12888SDH, 12888SDHA, 12888SDMC, 12888SDW, 12888SDWA
12888SE SERIES	12888SE, 12888SBE, 12888SB1E, 12888SB2E, 12888SC1E, 12888SC3E, 12888SC5E, 12888SCE, 12888SAE, 12888SA1E, 12888SA5E
12888SH SERIES	12888SH, 12888SHA, 12888SHB, 12888SHB1, 12888SHB2, 12888SHC1, 12888SHC, 12888SHE
12888SK SERIES	12888SK, 12888SCK, 12888SC1K, 12888SC3K, 12888SC5K, 12888SB2K, 12888SB1K, 12888SBK, 12888SA5K
12888SL SERIES	12888SL, 12888SAL, 12888SBL, 12888SB1L, 12888SB2L, 12888SC1L, 12888SCL
12888SM SERIES	12888SM0, 12888SM, 12888SMC1, 12888SMC, 12888SMW, 12888SMC5, 12888STM0, 12888STM, 12888STMC1, 12888STMC5, 12888STMC, 66LCD, 40LCD
12888S2M SERIES	12888S2M, 12888S2MC1, 12888S2MC5, 12888S2MC, 12888S2MB2, 12888S2MB, 12888S2MB1
12888ST SERIES	12888ST, 12888STB, 12888STB1, 12888STB2, 12888STC, 12888STC1, 12888STC3, 12888STC5, 12888STA, 12888STA0, 12888STA1, 12888STA2, 12888STA5, 12888STL, 12888STAL, 12888STB2L
12888SW SERIES	12888SW, 12888SAW, 12888SA0W, 12888SA1W, 12888SA2W, 12888SC1W, 12888SCW, 12888SW-D
12888W SERIES	12888W, 12888WA, 12888WT, 12888WTA
12888SWD SERIES	12888SWDA, 12888SWDB, 12888SWDC
12888SWK SERIES	12888SWK, 12888SWKC
12888SMP SERIES	12888SMP, 12888SMP-M, 12888SMP-SD, 12888SMP-SW, 12888SMP-SM, 12888SMP-C, 12888SMP-R, 12888SMP-MS, 12888SMP-MSTD, 12888SMP-MSTM, 12888SMP-MSTW, 12888SMP-MSHD, 12888SMP-MSHM, 12888SMP-MSHW,
12888V1 SERIES	12888V1, 12888V3
12888D2 SERIES	12888D2, 12888D2E, 12888D2ER, 12888D2R, 12888D2A, 12888D2A0, 12888D2A1, 12888D2B, 12888D2BR, 12888D2BE, 12888D2B1, 12888D2B2, 12888D2B2E, 12888D2B2R, 12888D2C, 12888D2CE, 12888D2CR, 12888D2C1, 12888D2C1R, 12888D2C1E, 12888D2C3, 12888D2C5, 12888D2C5E, ISK, ISL, ISX

12888D3 SERIES	12888D3, 12888D3E, 12888D3ER, 12888D3R, 12888D3A, 12888D3AR, 12888D3A0, 12888D3A1, 12888D3B, 12888D3BR, 12888D3BE, 12888D3B1, 12888D3B2, 12888D3B2E, 12888D3B2R, 12888D3C, 12888D3CE, 12888D3CR, 12888D3C1R, 12888D3C1, 12888D3C1E, 12888D3C3, 12888D3C5, 12888D3C5E
12888D5 SERIES	12888D5S, 12888D5B2, 12888D5C1, 12888D5C5, 12888D5C, 12888D5M0, 12888D5MC1, 12888D5MC
12888DM3 SERIES	12888DM3, 12888DM3A, 12888DM3B, 12888DM3B2, 12888DM3C, 12888DM3C1, 12888DM3C3, 12888DM3C5, 12888DM3AE, 12888DM3B2E, 12888DM3E, 12888DM3CE, 12888DM3C1E
12888DH SERIES	12888DH, 12888DH1, 12888DH2
12888DF SERIES	12888DF, 12888DF1, 12888DF2
12888MHH SERIES	12888MHH
12888MWD SERIES	12888MWD
12888MHD SERIES	12888MHD
12888R SERIES	12888R, 12888R1, 12888R2
12888P SERIES	12888P, 12888P0, 12888P1, 12888P2, 12888P4, 12888P5, 12888P1L
12888PT SERIES	12888PT, 12888PT0, 12888PT1, 12888PT2, 12888PT4, 12888PT5, 12888PTL
12888PK SERIES	12888PK, 12888PK0, 12888PK1, 12888PK2, 12888PK4, 12888PK5, 12888PK8, 12888PKL
12888PKS SERIES	12888PKS, 12888PKS0, 12888PKS1, 12888PKS4, 12888PKSL
12888PS SERIES	12888PS1, 12888PS1A, 12888PS1B, 12888PS1G, 12888PS1I, 12888PS2, 12888PS2A, 12888PS2B, 12888PS2I, 12888PS3, 12888PS3A, 12888PS3B, 12888PS3G, 12888PS3I,
12888BT SERIES	12888BT, 12888BT0, 12888BT1, 12888BT3, 12888BT4, 12888BT5, 12888BT8
12888MA SERIES	12888MA, 12888MA0, 12888MA1, 12888MA2, MK-1, 12888M
CLOCK SERIES	YT36, YT38, YT45, YT48, YT48A, YT48M, YT48M1, YT48M2, YT55, YT56, YT56A, YT56D, YT57M, YT64, YT65, YT65T, YT6565, YT68, YT68A, YT68D, YT69, YT70, YT70T, YT80, YT80A, YT80N, YT80H, YT82, YT82T, YT8464, YT85A, YT8565, YT90, YT90H, YT9974, YT115, YT120, YT120T, YT120A, YT130, YT150, YT160, YT200, YT230, YT300, YT430, YT500, YT90SD2A, YT90SD2B, YT90SD3A, YT90SD3B, YT90SD4, YT110SD2A, YT110SD3A, YT110SD3B, YT110SD4

2.2 Rating and Physical Characteristics

Model number:	Battery Capacity:
12888ST, 12888S, 12888PK	AA 1.5Vdc
12888SMP	AA 3Vdc
12888BT8	C 1.5Vdc

2.3 Sources of Interference

1) 32.768kHz Crystal

2.4 Noise Suppression Parts

None

2.5 Submitted Documents

None

3 Measurement Conditions

3.1 Modes of Operation

(1) The subject samples were tested in “ON” mode for all tests as described in this report.

3.2 Additional Equipment

The subject samples were tested as an independent unit without any additional accessory:

3.3 Test Setup

The test setup was realized on a table of 80-cm height during all tests as described herein.

(1)

Quartz Clock Movement (EUT) **M/N.: 12888ST, 12888S, 12888PK, 12888SMP, 12888BT8**	
	DC Battery

3.4 List of Test and Measurement Instruments

Table 1: List of Test and Measurement Equipment

For EMI/Radiation Measurement (Semi-Anechoic Chamber)

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	EMI Test Receiver	R&S	ESCI 7	1166.5950K07-100797-Pt	2012/11/8
2	Bilog Antenna	TESEQ	CBL6111D	29802	2012/9/30
3	Pre-Amplifier	HP	8447F	2805A03335	2012/12/25

For EMS/RF Field Strength Susceptibility Measurement

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Signal Generator	R&S	SMB100A	104167	2012/9/23
2	RF Power Amplifier	FRANKONIA	FLH-200B	1088	N.C.R.
3	RF Power Meter	FRANKONIA	PMS_1084	108B1251	2012/9/28
4	Broadband Field Meter	Narda	NBM-520	C-0411	2012/9/1
5	Direction Coupler	AR	DC6180A	0334572	N.C.R
6	RS Chamber	ChanceMost	844	N/A	2012/12/15

For EMS/Power Frequency Magnetic Field Measurement

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Magnetic Field	EMC-PARTNER	MF1000-1	191	2012/09/23
2	TRANSIENT 2000	EMC-PARTNER	TRA2006 F-S-T-D-R	1150	2012/10/18

For EMS/ESD Measurement

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	ESD Simulator	TESEQ	NSG 437	372	2012/10/31

3.5 Abbreviations

PASS	means 'complied with requirement'	**N/A**	means 'not applicable'
FAIL	means 'not complied'	**N.C.R.**	means 'no calibration required'

4 Test Results E M I S S I O N

Result:	**PASS**

4.1 Continuous Interference

4.1.1 Conducted Emission (AC Mains)

Port: AC Mains
Basic Standard: CISPR 22
Frequency Range: 0.15 - 30 MHz
Limits: Table 2, Class B

Result:	**N/A**

The subject sample is not intended to be connected to AC mains supply. Therefore, this test is not applicable.

4.1.2 Radiated Emission (Below 1GHz)

Port:	Enclosure
Basic Standard:	CISPR 22
Frequency Range:	30 - 1000 MHz
Limits:	Table 6, Class B (at 3m distance)

Result:	**PASS**

Test Setup

Date of Test:	06 Feb. 2012
Input Voltage:	(1) AA1.5Vdc
	(2) AA3Vdc
	(3) C1.5Vdc
Operational Mode:	see 3.1
Earthing:	N/A
Temperature	20 ℃
Relative Humidity	65 %

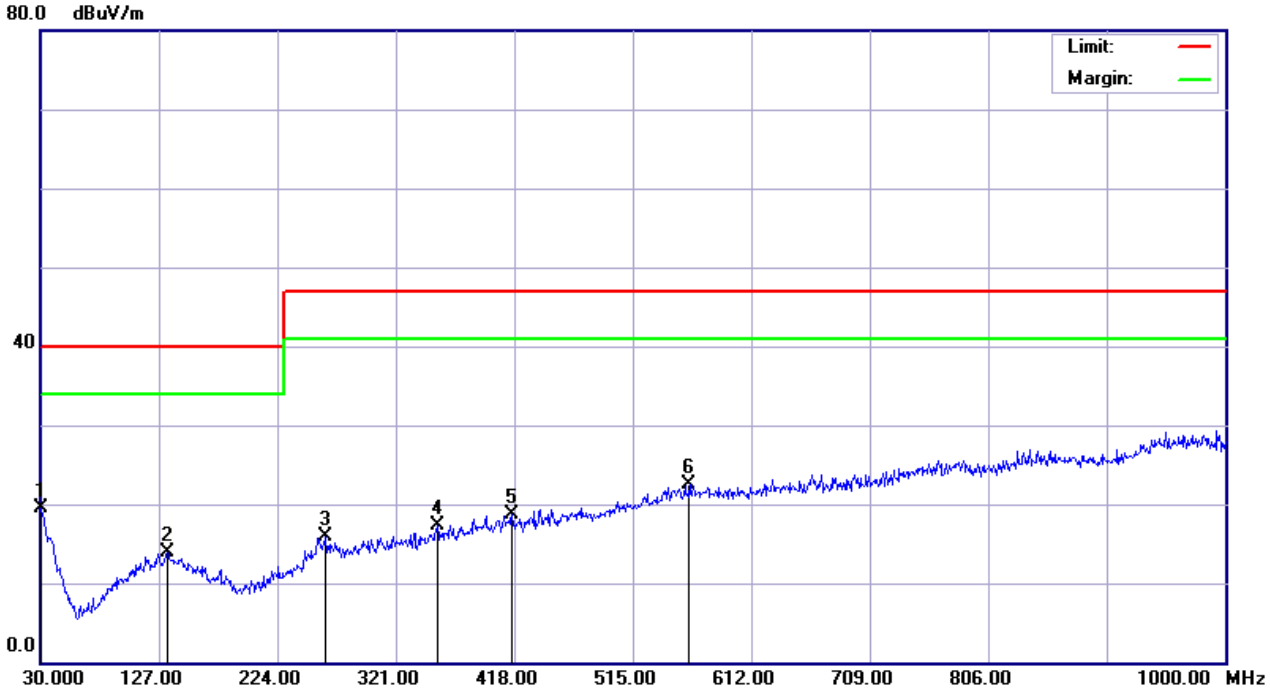
Table 2: Radiated Emission; 30 - 1000 MHz

Settings

Frequency		**Settings**	
Start	Stop	IF Bandwidth	Detector
30 MHz	1 GHz	120 kHz	QP

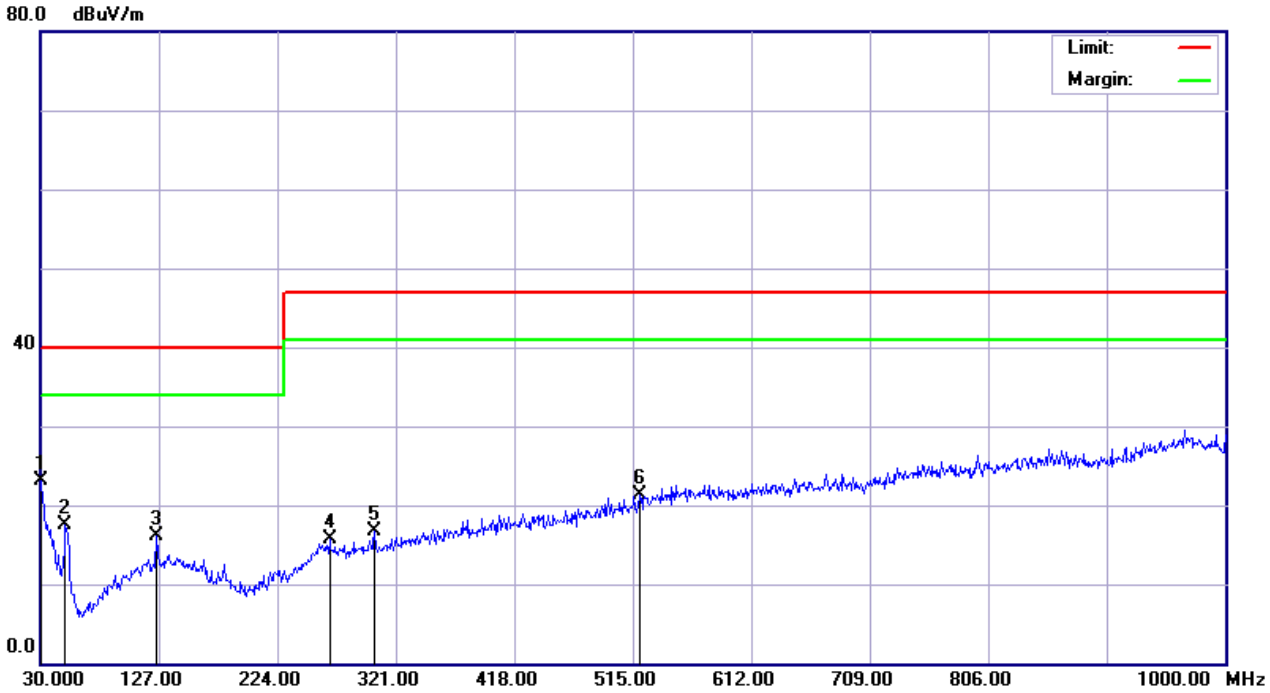
Figure 1: Radiated Emission, 30 - 1000 MHz, Horizontal (12888ST)

Input Voltage: AA1.5Vdc



No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (◦)	P/F	Remark
1	30.9699	-8.30	27.83	19.53	40.00	-20.47	QP	100	115	P	
2	133.7899	-13.61	27.60	13.99	40.00	-26.01	QP	100	255	P	
3	263.7699	-11.51	27.43	15.92	47.00	-31.08	QP	200	344	P	
4	354.9499	-10.05	27.29	17.24	47.00	-29.76	QP	300	326	P	
5	416.0600	-8.84	27.48	18.64	47.00	-28.36	QP	200	0	P	
6	561.5599	-5.88	28.40	22.52	47.00	-24.48	QP	100	360	P	

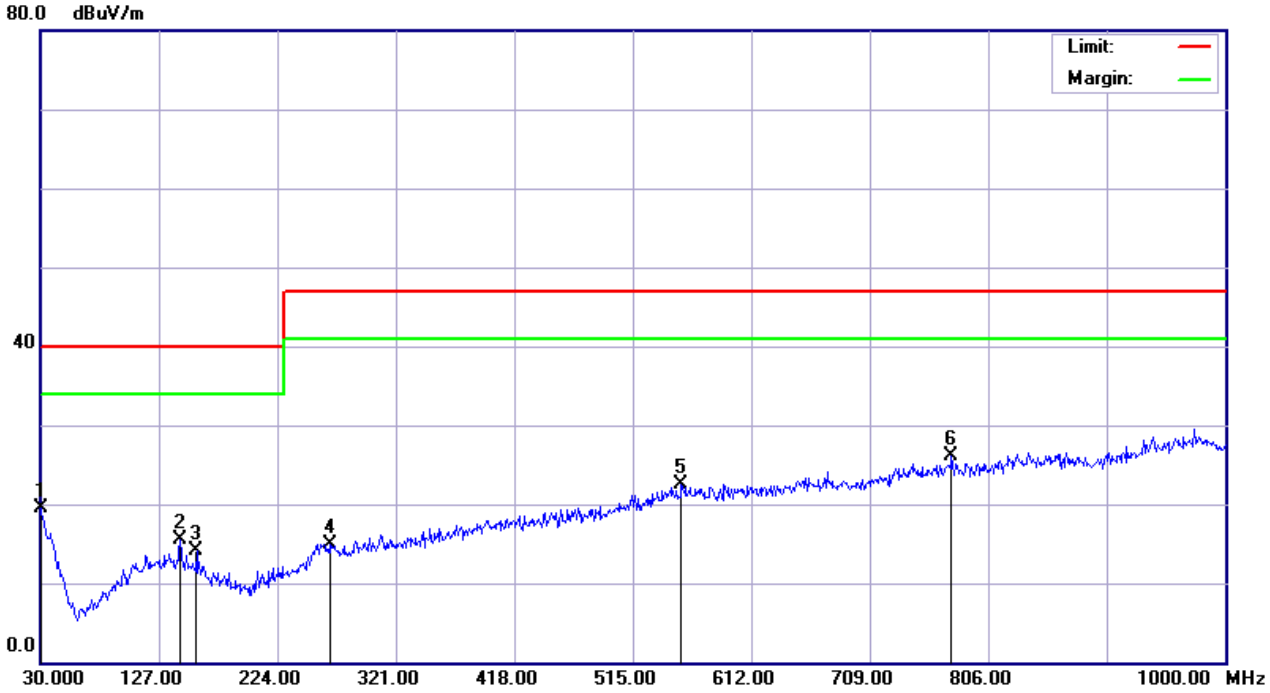
Figure 2: Radiated Emission, 30 - 1000 MHz, Vertical (12888ST)



No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (◦)	P/F	Remark
1	30.0000	-7.72	30.91	23.19	40.00	-16.81	QP	100	341	P	
2	50.3700	-18.36	35.81	17.45	40.00	-22.55	QP	100	104	P	
3	125.0600	-13.87	29.98	16.11	40.00	-23.89	QP	100	41	P	
4	266.6800	-11.60	27.24	15.64	47.00	-31.36	QP	400	176	P	
5	303.5400	-11.21	27.95	16.74	47.00	-30.26	QP	100	237	P	
6	520.8200	-6.88	28.19	21.31	47.00	-25.69	QP	400	360	P	

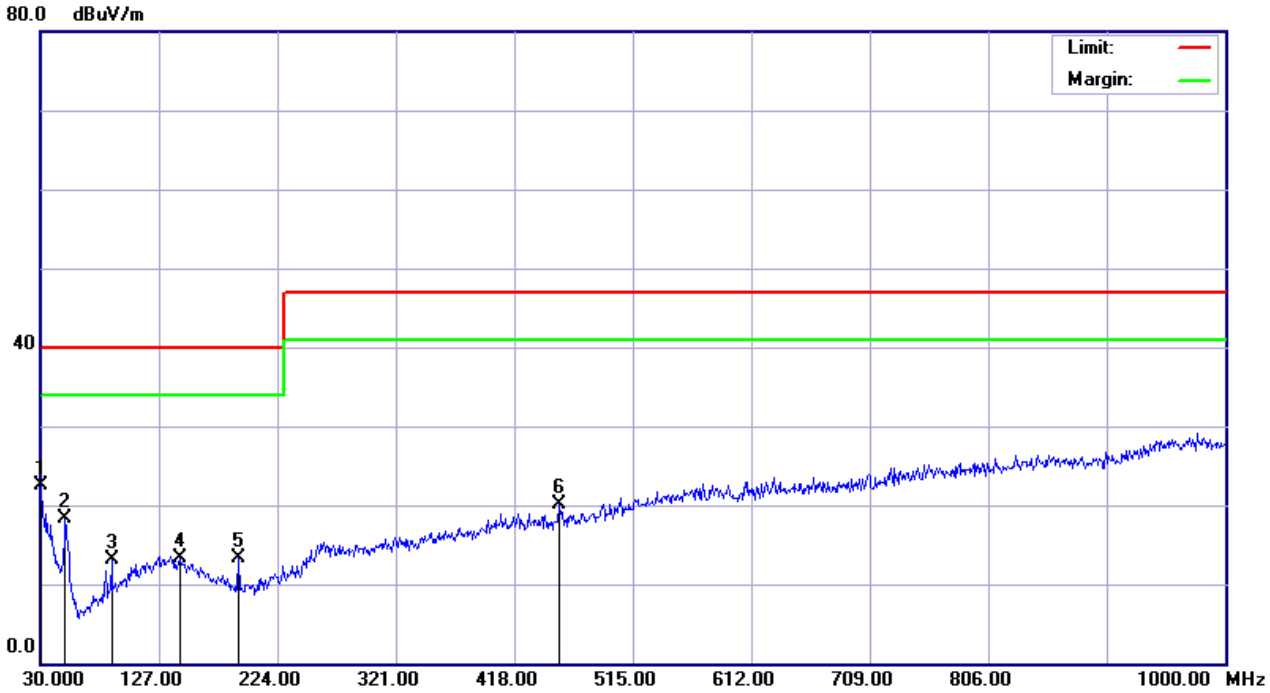
Figure 3: Radiated Emission, 30 - 1000 MHz, Horizontal (12888S)

Input Voltage: AA1.5Vdc



No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (◦)	P/F	Remark
1	30.0000	-7.72	27.28	19.56	40.00	-20.44	QP	400	0	P	
2	144.4600	-13.80	29.23	15.43	40.00	-24.57	QP	200	0	P	
3	158.0399	-14.55	28.56	14.01	40.00	-25.99	QP	200	0	P	
4	266.6800	-11.60	26.54	14.94	47.00	-32.06	QP	300	216	P	
5	554.7698	-5.89	28.35	22.46	47.00	-24.54	QP	300	146	P	
6	775.9299	-3.23	29.29	26.06	47.00	-20.94	QP	200	0	P	

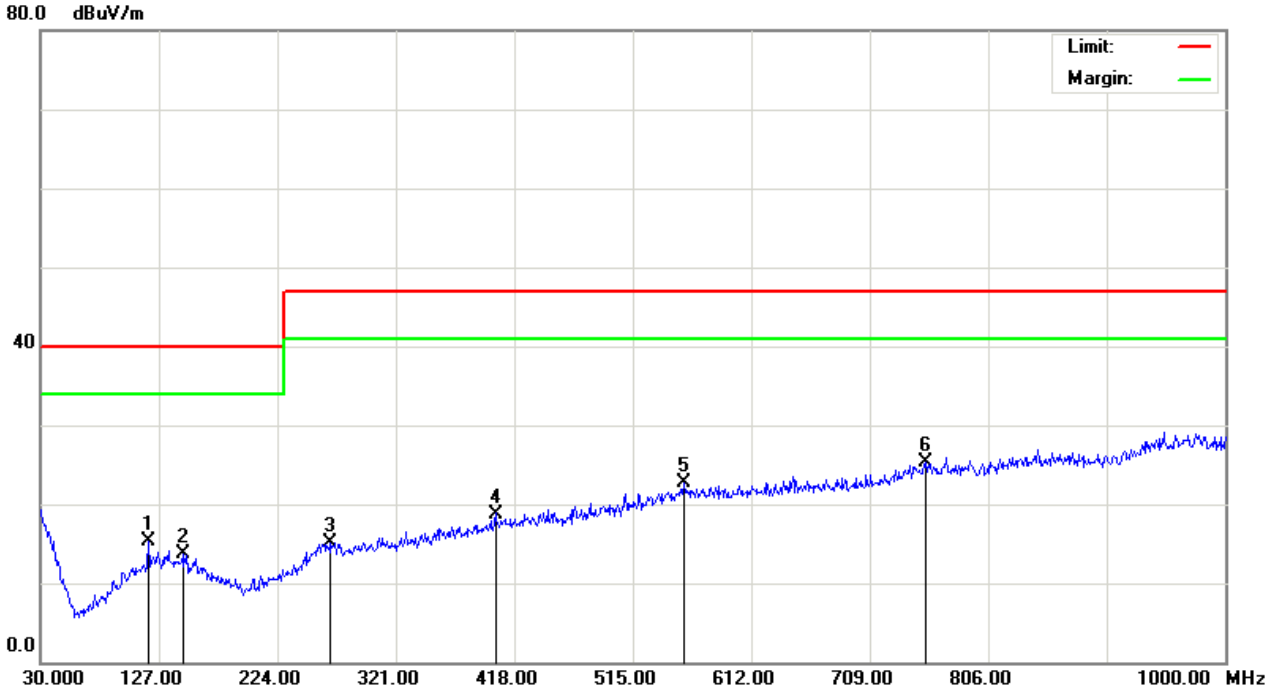
Figure 4: Radiated Emission, 30 - 1000 MHz, Vertical (12888S)



No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (°)	P/F	Remark
1	30.0000	-7.72	30.26	22.54	40.00	-17.46	QP	100	168	P	
2	50.3700	-18.36	36.59	18.23	40.00	-21.77	QP	100	314	P	
3	88.2000	-17.31	30.43	13.12	40.00	-26.88	QP	100	317	P	
4	144.4600	-13.80	27.16	13.36	40.00	-26.64	QP	300	71	P	
5	191.9900	-16.89	30.21	13.32	40.00	-26.68	QP	100	317	P	
6	454.8600	-8.58	28.63	20.05	47.00	-26.95	QP	100	277	P	

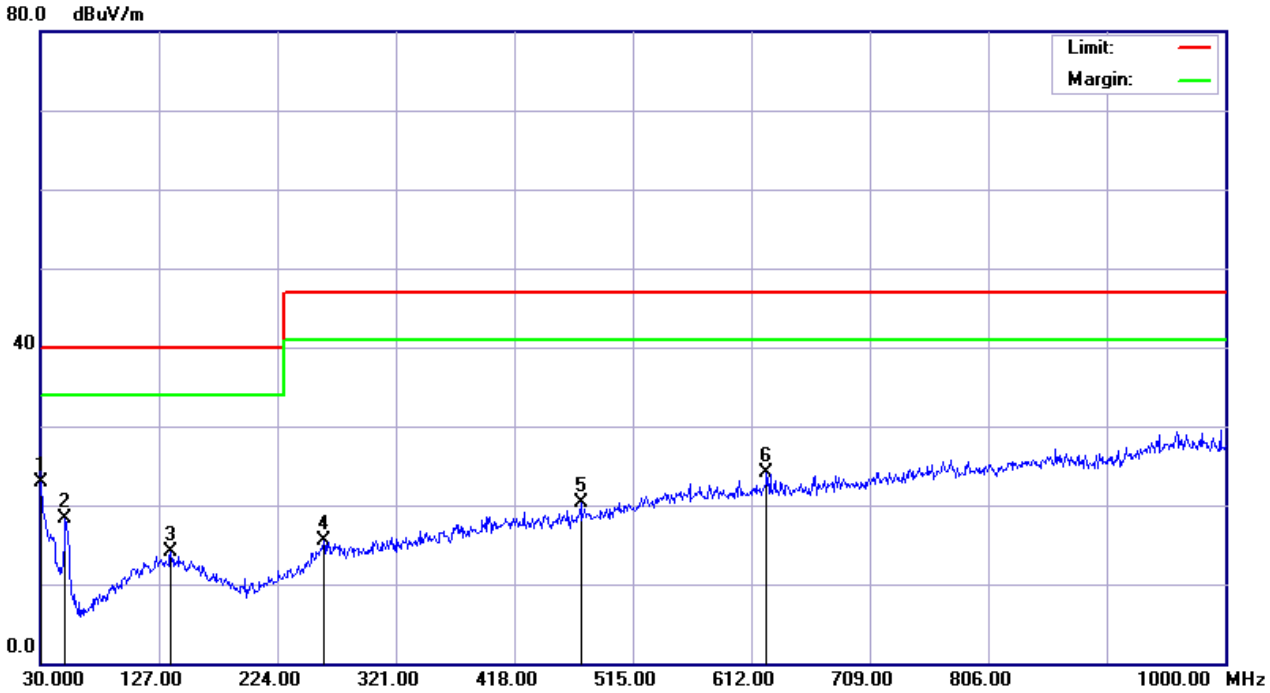
Figure 5: Radiated Emission, 30 - 1000 MHz, Horizontal (12888PK)

Input Voltage: AA1.5Vdc



No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (◦)	P/F	Remark
1	118.2699	-14.22	29.50	15.28	40.00	-24.72	QP	400	157	P	
2	146.4000	-13.91	27.56	13.65	40.00	-26.35	QP	300	143	P	
3	267.6499	-11.62	26.69	15.07	47.00	-31.93	QP	400	214	P	
4	402.4800	-8.91	27.71	18.80	47.00	-28.20	QP	200	18	P	
5	556.7100	-5.89	28.59	22.70	47.00	-24.30	QP	200	181	P	
6	754.5900	-3.32	28.57	25.25	47.00	-21.75	QP	300	40	P	

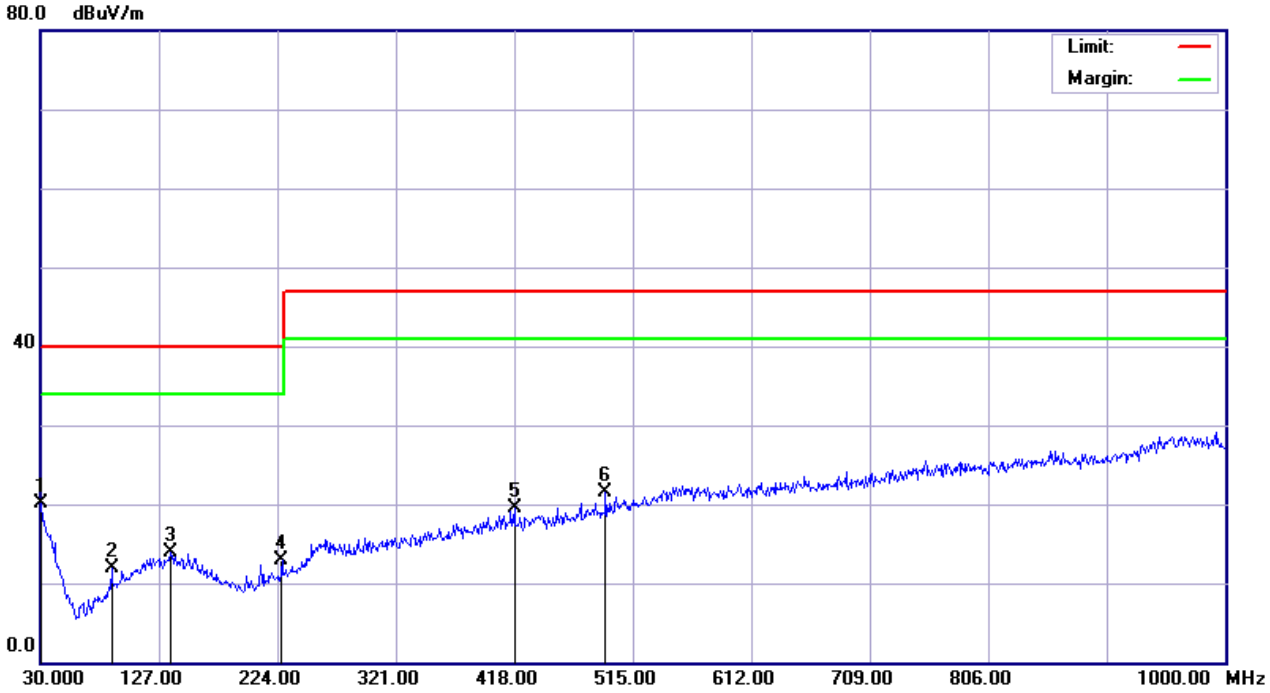
Figure 6: Radiated Emission, 30 - 1000 MHz, Vertical (12888PK)



No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (◦)	P/F	Remark
1	30.9700	-8.30	31.20	22.90	40.00	-17.10	QP	100	358	P	
2	50.3700	-18.36	36.63	18.27	40.00	-21.73	QP	100	68	P	
3	136.7000	-13.58	27.69	14.11	40.00	-25.89	QP	300	231	P	
4	261.8299	-11.46	27.05	15.59	47.00	-31.41	QP	400	179	P	
5	472.3200	-8.21	28.55	20.34	47.00	-26.66	QP	100	358	P	
6	624.6100	-5.57	29.58	24.01	47.00	-22.99	QP	200	56	P	

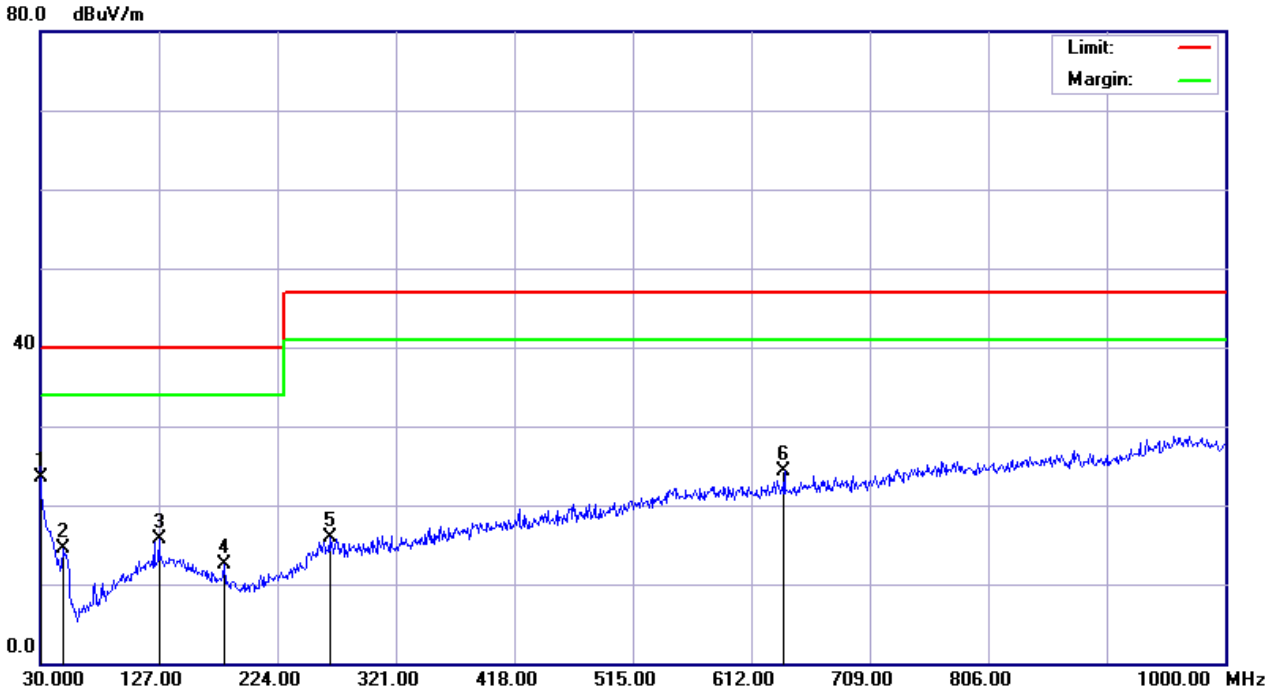
Figure 7: Radiated Emission, 30 - 1000 MHz, Horizontal (12888SMP)

Input Voltage: AA3Vdc



No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (◦)	P/F	Remark
1	30.9699	-8.30	28.35	20.05	40.00	-19.95	QP	100	355	P	
2	88.2000	-17.31	29.15	11.84	40.00	-28.16	QP	300	46	P	
3	136.6999	-13.58	27.46	13.88	40.00	-26.12	QP	100	136	P	
4	227.8799	-14.99	27.80	12.81	40.00	-27.19	QP	200	148	P	
5	418.0000	-8.84	28.35	19.51	47.00	-27.49	QP	200	0	P	
6	492.6899	-7.76	29.23	21.47	47.00	-25.53	QP	300	153	P	

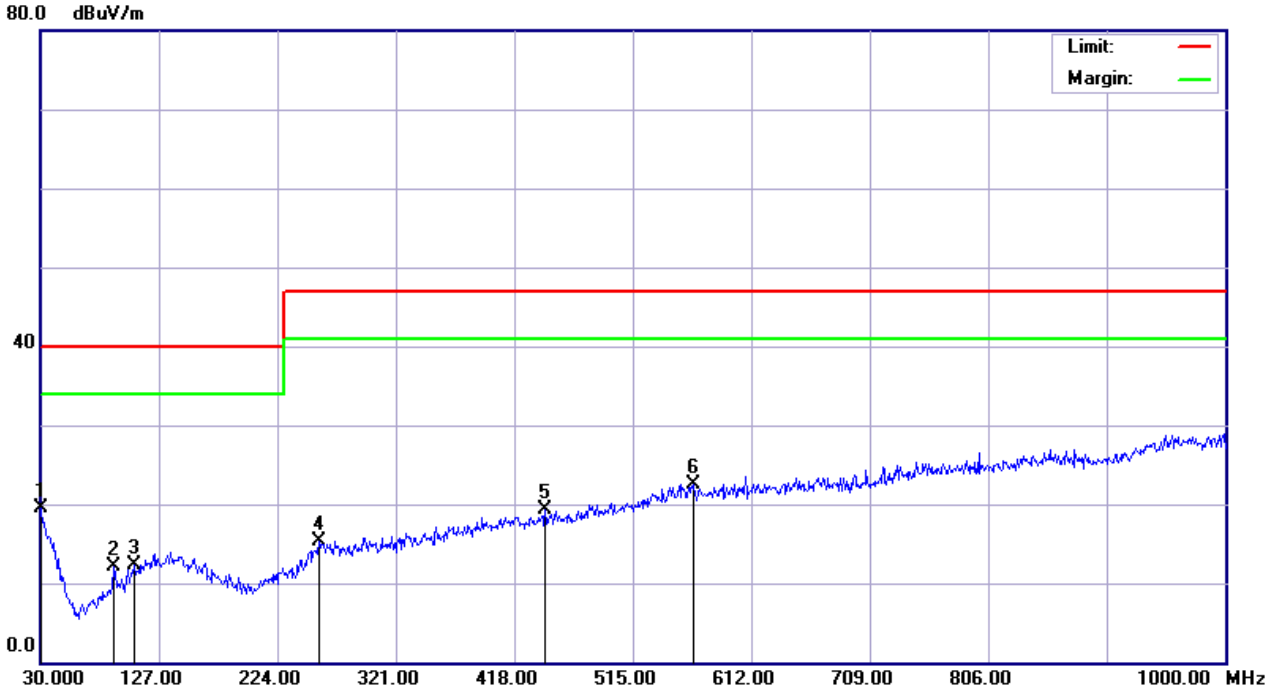
Figure 8: Radiated Emission, 30 - 1000 MHz, Vertical (12888SMP)



No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (◦)	P/F	Remark
1	30.0000	-7.72	31.24	23.52	40.00	-16.48	QP	100	244	P	
2	48.4300	-17.52	32.03	14.51	40.00	-25.49	QP	100	208	P	
3	127.0000	-13.80	29.59	15.79	40.00	-24.21	QP	100	2	P	
4	180.3500	-15.96	28.49	12.53	40.00	-27.47	QP	100	317	P	
5	266.6800	-11.60	27.41	15.81	47.00	-31.19	QP	400	339	P	
6	639.1599	-5.40	29.64	24.24	47.00	-22.76	QP	100	0	P	

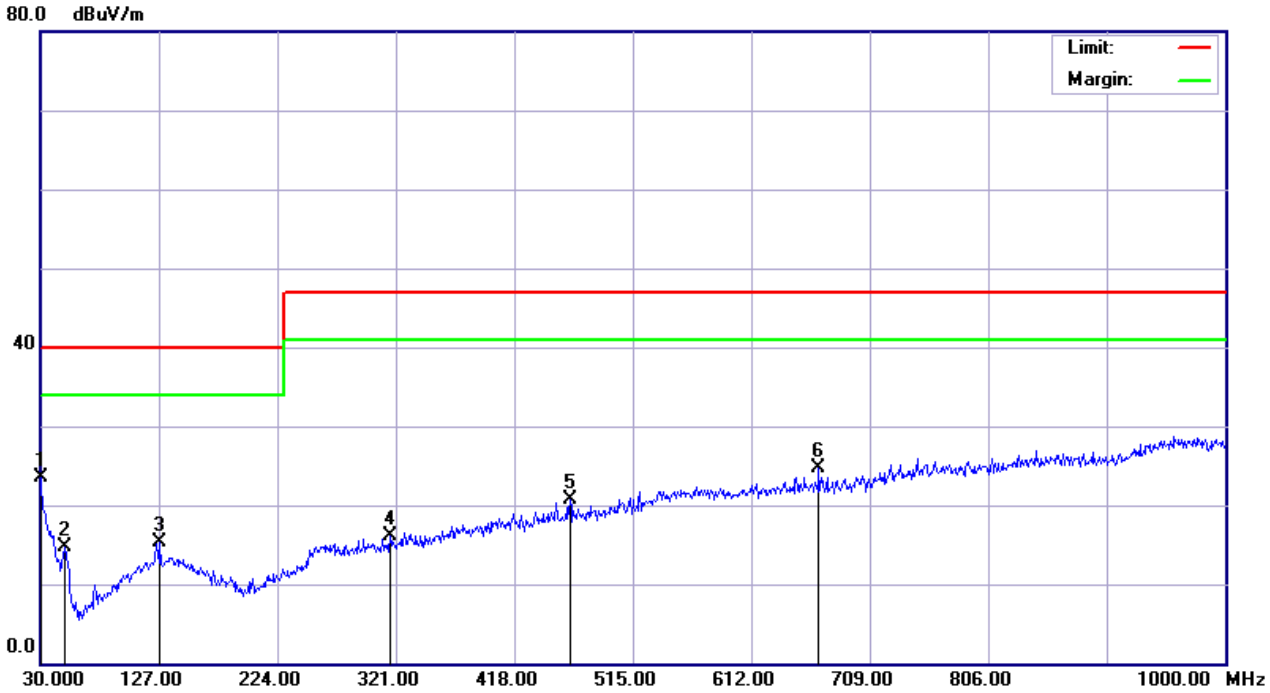
Figure 9: Radiated Emission, 30 - 1000 MHz, Horizontal (12888BT8)

Input Voltage: C1.5Vdc



No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (◦)	P/F	Remark
1	30.0000	-7.72	27.23	19.51	40.00	-20.49	QP	400	104	P	
2	90.1400	-17.04	29.13	12.09	40.00	-27.91	QP	400	314	P	
3	106.6299	-15.20	27.60	12.40	40.00	-27.60	QP	200	297	P	
4	257.9499	-11.69	27.02	15.33	47.00	-31.67	QP	400	54	P	
5	443.2200	-8.71	28.07	19.36	47.00	-27.64	QP	300	360	P	
6	564.4699	-5.88	28.44	22.56	47.00	-24.44	QP	100	192	P	

Figure 10: Radiated Emission, 30 - 1000 MHz, Vertical (12888BT8)



No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (◦)	P/F	Remark
1	30.0000	-7.72	31.20	23.48	40.00	-16.52	QP	100	218	P	
2	50.3700	-18.36	33.06	14.70	40.00	-25.30	QP	100	314	P	
3	127.9700	-13.76	28.99	15.23	40.00	-24.77	QP	200	273	P	
4	316.1500	-10.93	27.03	16.10	47.00	-30.90	QP	400	83	P	
5	463.5900	-8.40	29.10	20.70	47.00	-26.30	QP	400	72	P	
6	667.2900	-5.17	29.94	24.77	47.00	-22.23	QP	300	0	P	

4.1.3 Radiated Emission (Above 1GHz)

Port: Enclosure
Basic Standard: CISPR22
Frequency Range: 1 - 6 GHz
Limits: Table 8, Class B

Result:	**N/A**

The highest frequency of the internal sources of the EUT is less than 108 MHz, the measurement shall only be made up to 1 GHz. Therefore this test is not applicable.

4.2 Disturbances in Supply Systems

4.2.1 Harmonics

Port: AC Mains
Basic Standard: IEC/EN 61000-3-2
Limits: EN 61000-3-2, clause 7

Result:	**N/A**

The subject sample is not intended to be connected to AC mains supply. Therefore, this test is not applicable.

4.2.2 Voltage Fluctuations

Port: AC Mains
Basic Standard: IEC/EN 61000-3-3
Limits: EN 61000-3-3, clause 5

Result:	**N/A**

The subject sample is not intended to be connected to AC mains supply. Therefore, this test is not applicable.

5 Test Results I M M U N I T Y

Result:	**PASS**

5.1 Enclosure Port

5.1.1 Radio-Frequency Electromagnetic Field

Port:	Enclosure		
Basic Standard:	IEC/EN 61000-4-3		
Performance Criteria:	A		
Test Specification:	EN 61000-6-1	80 - 1000 MHz	
	Frequency Range:	1.4 - 2 GHz	2 - 2.7 GHz
	Field Strength	3 V/m (unmodulated)	1 V/m (unmodulated)
	Modulation:	1 kHz AM 80%	1 kHz AM 80%

Result:	**PASS**

Test Setup

Date of Test:	06 Feb. 2012
Input Voltage:	(1) AA1.5Vdc
	(2) AA3Vdc
	(3) C1.5Vdc
Operational Mode:	see 3.1
Earthing:	N/A
Temperature	23 ºC
Relative Humidity	59 %

Table 3: Radio-Frequency Electromagnetic Field

Settings

Frequency			**Settings**			
Start	Stop	Step Size	Field Strength	Sweep mode	Meas. Time	Modulation
80 MHz	1000 MHz	1% of the preceding frequency	3 V/m	auto	3000 ms	1 kHz AM 80%
1.4 GHz	2 GHz	1% of the preceding frequency	3 V/m	auto	3000 ms	1 kHz AM 80%
2 GHz	2.7 GHz	1% of the preceding frequency	1 V/m	auto	3000 ms	1 kHz AM 80%

No abnormalities were observed during and after the tests.

5.1.2 Electrostatic Discharge

Port:	Enclosure	
Basic Standard:	IEC/EN 61000-4-2	
Performance Criteria:	B	
Test Specification:	EN 61000-6-1	
	Voltage:	2, 4, 8 kV (Air Discharge) 4 kV (Contact Discharge) H.C.P. and V.C.P.

Result:	**PASS**

Test Setup

Date of Test:	06 Feb. 2012
Input Voltage:	(1) AA1.5Vdc (2) AA3Vdc (3) C1.5Vdc
Operational Mode:	see 3.1
Earthing:	N/A
Temperature	22 ºC
Relative Humidity	55 %

Table 4: Electrostatic Discharge

Test point	Polarity	Number of Discharges	Observation	Result
H.C.P.	+/-4 kV	50	normal function	**PASS**
V.C.P.	+/-4 kV	150	normal function	**PASS**

Note : The testing was performed by air and contact method but there was no discharge to the EUT except for points in the table shown above.

5.1.3 Power Frequency Magnetic Field Immunity

Port:	Enclosure	
Basic Standard:	IEC/EN 61000-4-8	
Performance Criteria:	A	
Test Specification:	EN 61000-6-1	
	Frequency:	50Hz, 60Hz
	Magnetic Field Strength	3 A/m , Level 2

Result:	**PASS**

Test Setup

Date of Test:	06 Feb. 2012
Input Voltage:	(1) AA1.5Vdc
	(2) AA3Vdc
	(3) C1.5Vdc
Operational Mode:	ON, see 3.1
Earthing	N/A
Temperature	25 ºC
Relative Humidity	55 %

Table 5: Power Frequency Magnetic Field Immunity

Test frequency	Test Axis	Test Level (A/m)	Observation
50Hz, 60Hz	X	3	normal function
50Hz, 60Hz	Y	3	normal function
50Hz, 60Hz	Z	3	normal function

No abnormalities were observed during and after the tests.

5.2 Input and Output AC Power Ports

5.2.1 Conducted Disturbances

Port:	AC Mains	
Basic Standard:	IEC/EN 61000-4-6	
Performance Criteria:	A	
Test Specification:	EN 61000-6-1	
	Frequency Range:	0.15 - 80 MHz
	Voltage Level	3 Vrms (unmodulated) AM 80%, 1kHz sine wave

Result:	**N/A**

The subject sample is not intended to be connected to AC mains supply. Therefore, this test is not applicable.

5.2.2 Fast Transients Common Mode

Port:	AC Mains	
Basic Standard:	IEC/EN 61000-4-4	
Performance Criteria:	B	
Test Specification:	EN 61000-6-1	
	Peak Voltage:	1.0 kV
	T_r/T_n	5/50 ns
	Rep. Frequency	5 kHz

Result:	**N/A**

The subject sample is not intended to be connected to AC mains supply. Therefore, this test is not applicable.

5.2.3 Surges

Port:	AC Mains	
Basic Standard:	IEC/EN 61000-4-5	
Performance Criteria:	B	
Test Specification:	EN 61000-6-1	
	Peak Voltage:	0.5 kV (line to line)
		0.5 kV (line to ground)
	T_r/T_h	1,2/50 µs

Result:	**N/A**

The subject sample is not intended to be connected to AC mains supply. Therefore, this test is not applicable.

5.2.4 Voltage Dips and Interruptions

Port:	AC Mains	
Basic Standard:	IEC/EN 61000-4-11	
Performance Criteria:	B (for 0%, 0.5 period)	
	B (for 0%, 1 period)	
	C (for 30 %, 25/30 periods at 50/60Hz)	
	C (for >95%, 250/300 periods at 50/60Hz)	
Test Specification:	EN 61000-6-1	0% U_T for Voltage Reductions,
	Test Level:	no. of cycle: 0.5
		0% U_T for Voltage Reductions,
		no. of cycle: 1
		70% U_T for Voltage Reductions,
		no. of cycle: 25/30
		0% U_T for Voltage Reductions,
		no. of cycle: 250/300

Result:	**N/A**

The subject sample is not intended to be connected to AC mains supply. Therefore, this test is not applicable.

5.3 Signal and Telecommunication Ports

5.3.1 Fast Transients Common Mode

Port:	Signal / Telecommunication Ports	
Basic Standard:	IEC/EN 61000-4-4	
Performance Criteria:	B	
Test Specification:	EN 61000-6-1	
	Peak Voltage:	0.5 kV
	T_r/T_n	5/50 ns
	Rep. Frequency	5 kHz

Result:	**N/A**

There are no signal lines and control lines on subject sample. Therefore, this test is not applicable.

5.3.2 Conducted Disturbances

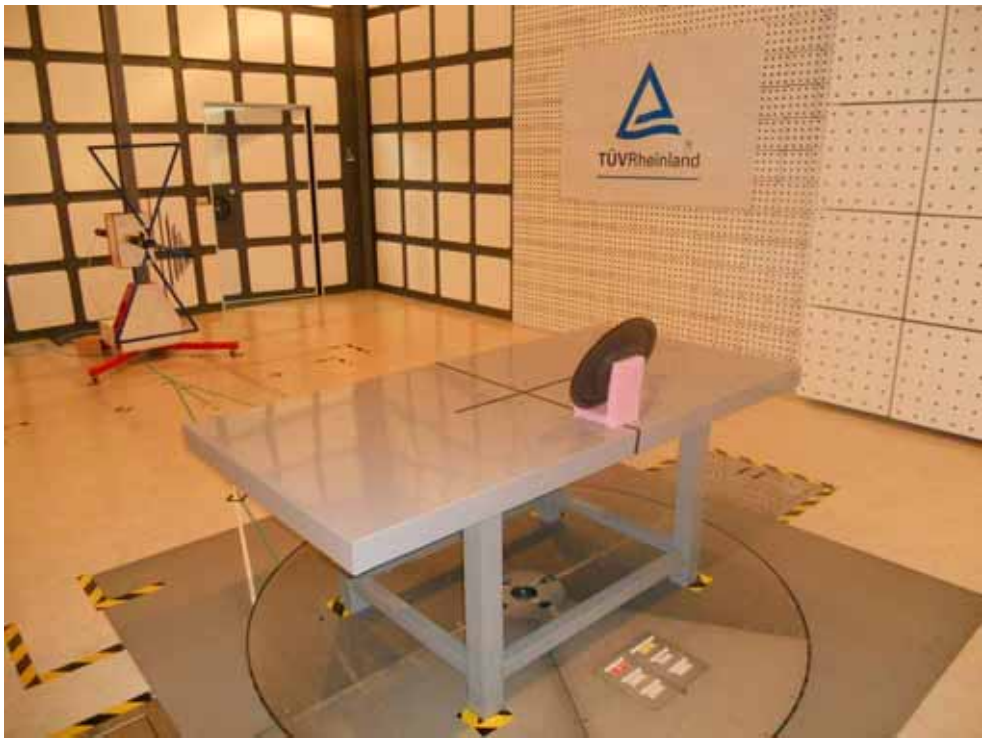
Port:	Signal / Telecommunication Ports	
Basic Standard:	IEC/EN 61000-4-6	
Performance Criteria:	A	
Test Specification:	EN 61000-6-1	
	Frequency Range:	0.15 - 80 MHz
	Voltage Level	3 Vrms (unmodulated)
		AM 80%, 1kHz sine wave

Result:	**N/A**

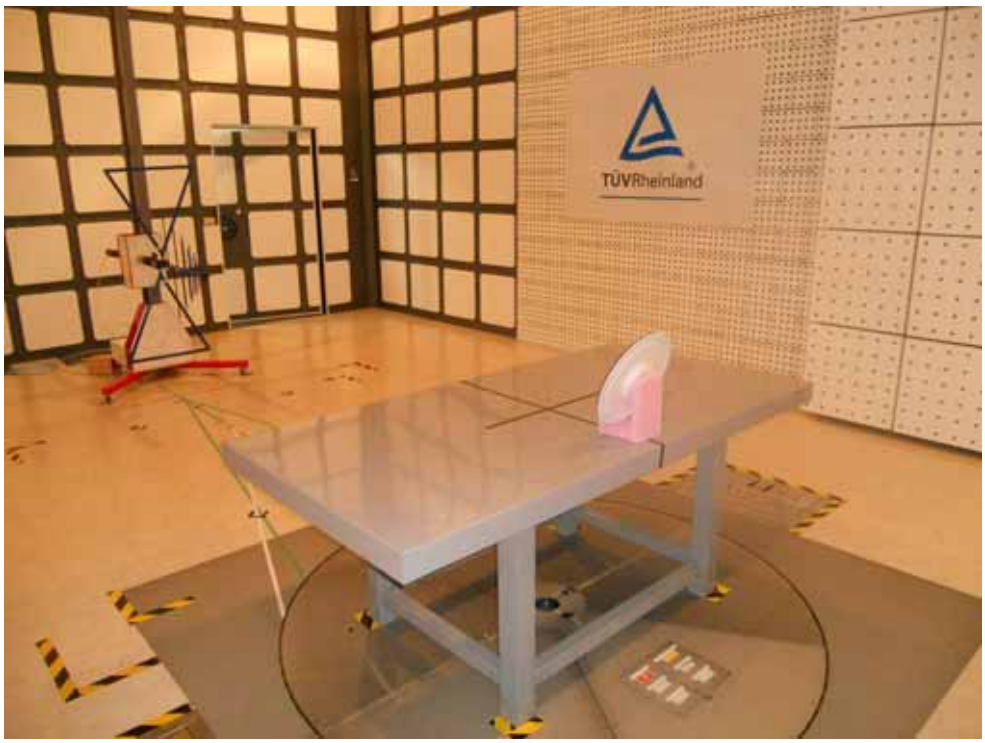
There are no signal lines and control lines on subject sample. Therefore, this test is not applicable.

6 Photographs of the Test Set-up

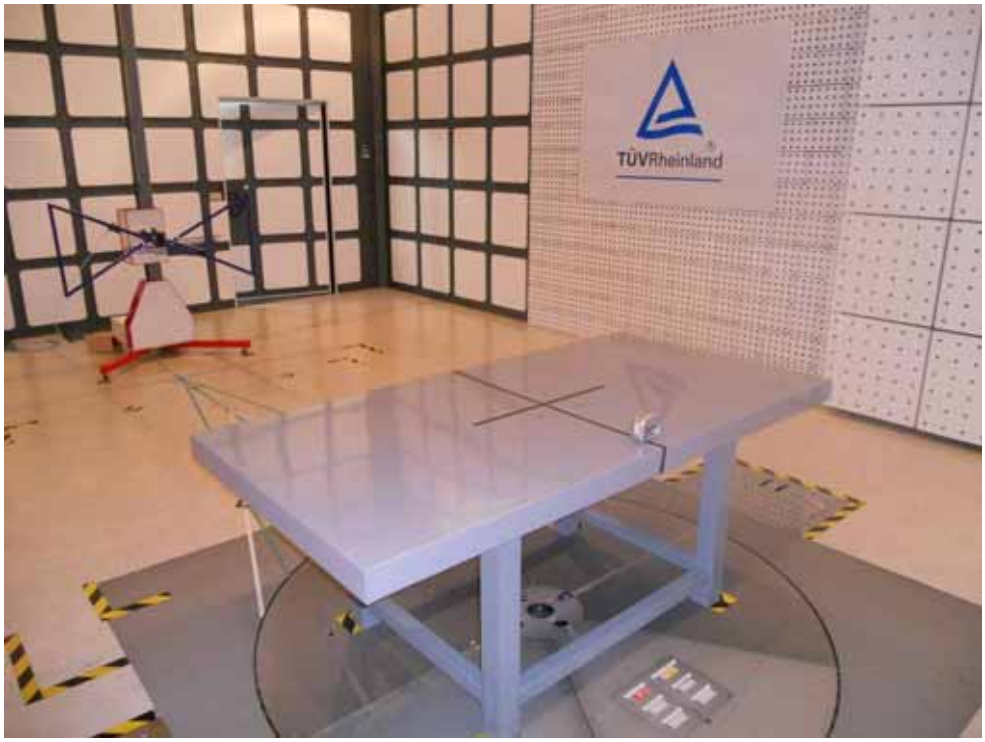
Picture 1: Radiated Emission (12888ST)



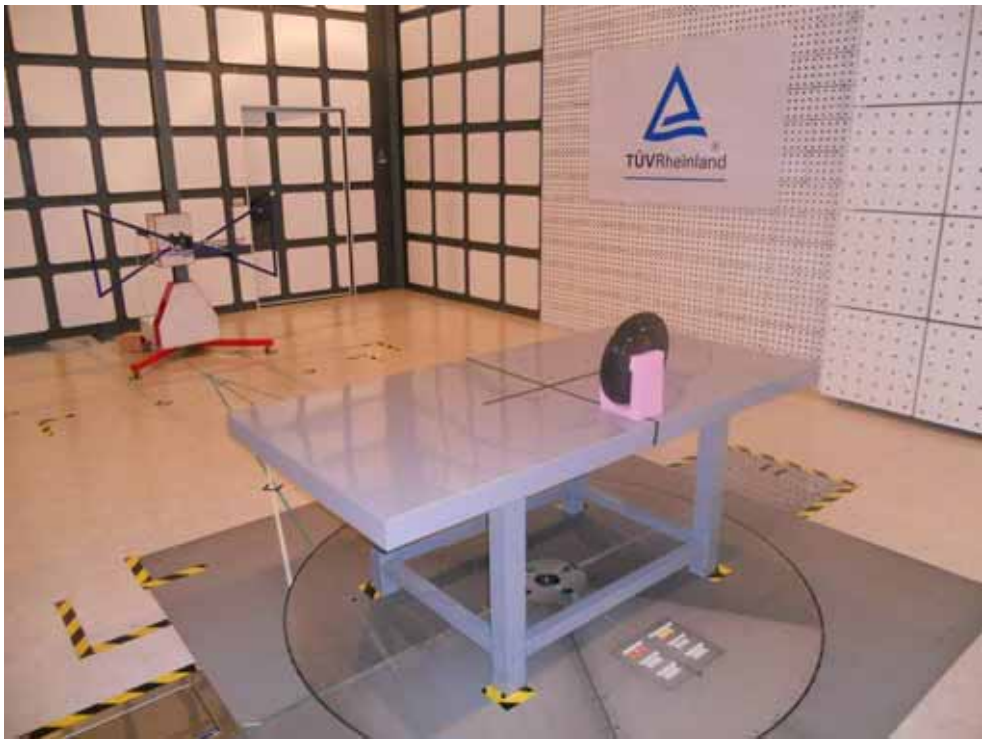
Picture 2: Radiated Emission (12888S)



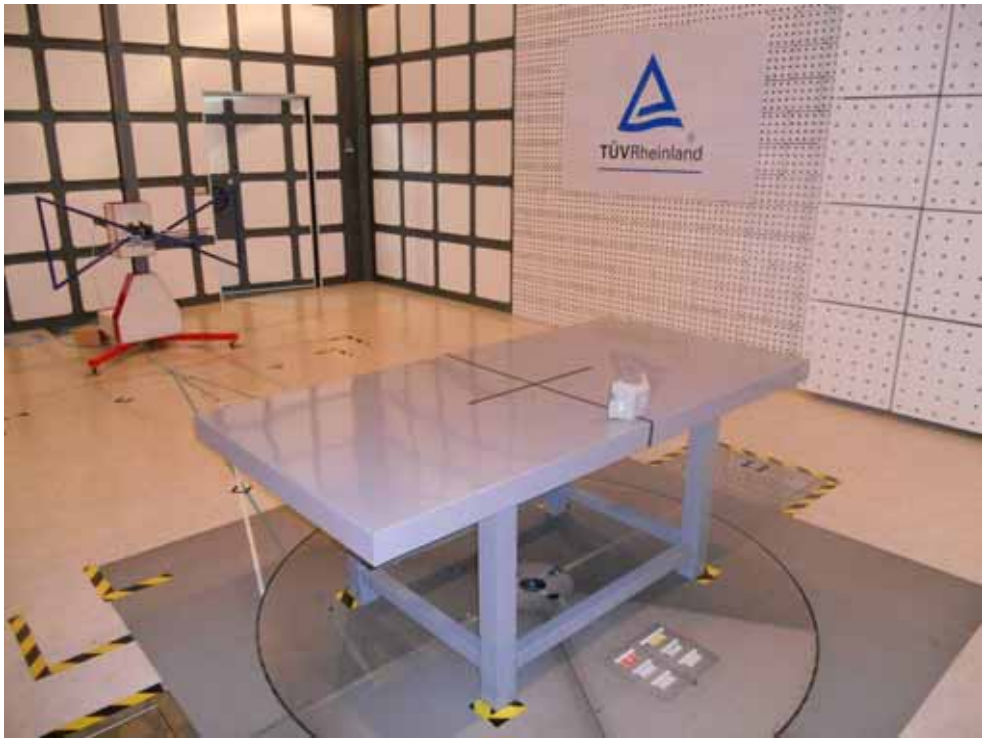
Picture 3: Radiated Emission (12888PK)



Picture 4: Radiated Emission (12888SMP)



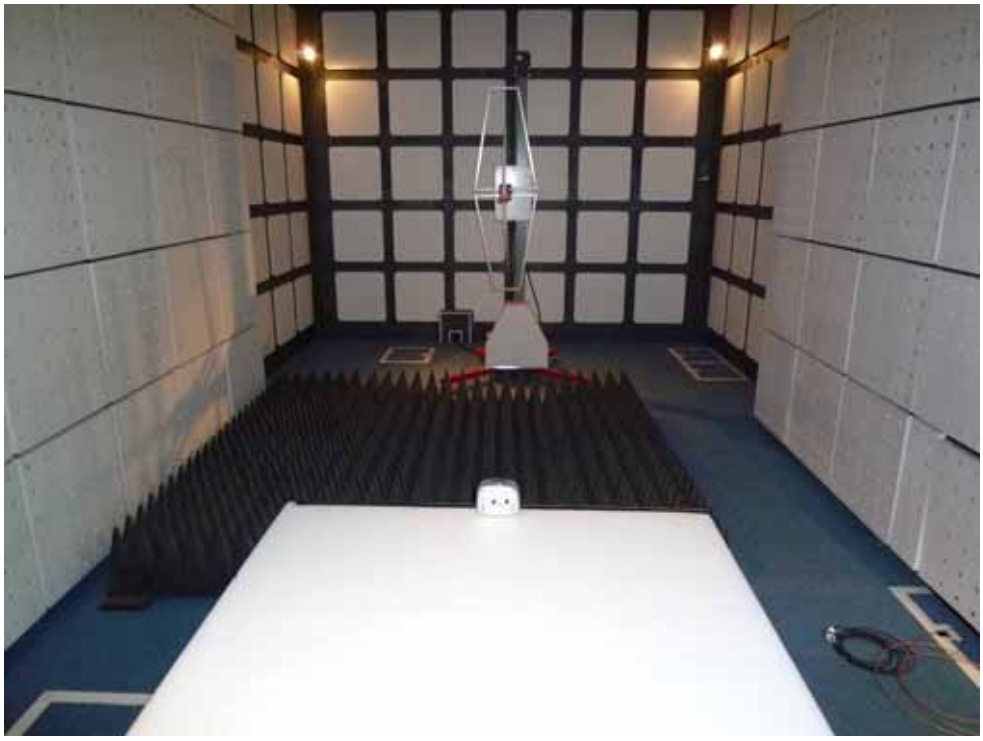
Picture 5: Radiated Emission (12888BT8)



Picture 6: Radiated Susceptibility (12888ST)

Picture 7: Radiated Susceptibility (12888S)

Picture 8: Radiated Susceptibility (12888PK)



Picture 9: Radiated Susceptibility (12888SMP)

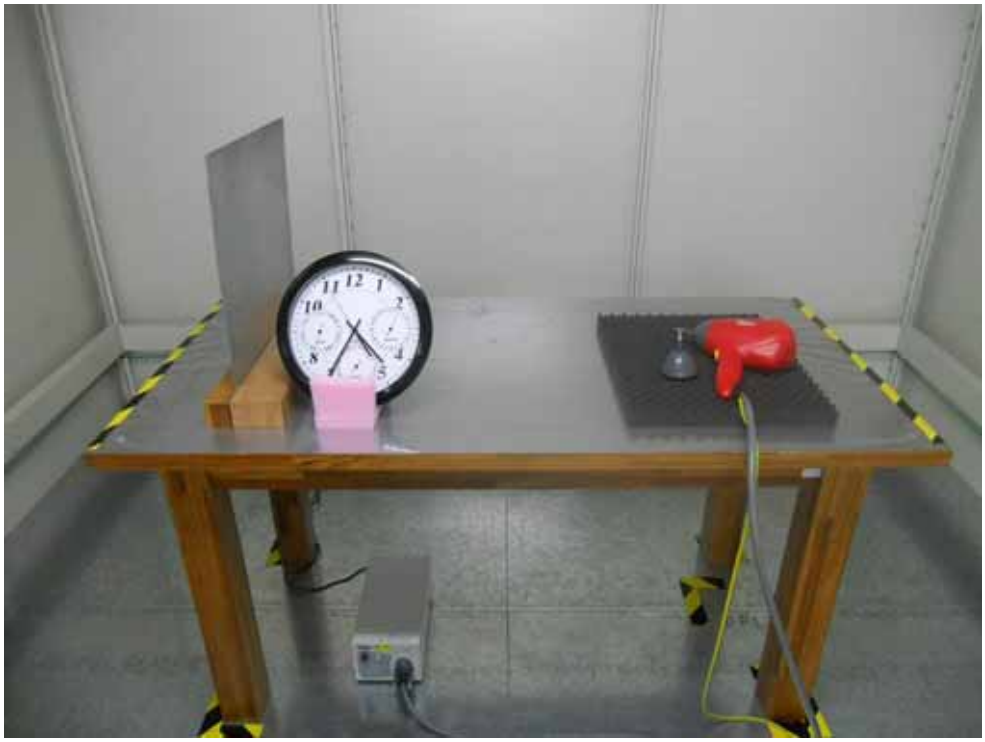
Picture 10:Radiated Susceptibility (12888BT8)

Picture 11:Electrostatic Discharge, H.C.P. & V.C.P. (12888ST)

Picture 12:Electrostatic Discharge, H.C.P. & V.C.P. (12888S)

PKPicture 13: Electrostatic Discharge, H.C.P. & V.C.P. (12888PK)

SMPPicture 14: Electrostatic Discharge, H.C.P. & V.C.P. (12888SMP)



BT8Picture 15: Electrostatic Discharge, H.C.P. & V.C.P. (12888BT8)

Picture 16:Power Frequency Magnetic Field Immunity.(12888ST)

Picture 17:Power Frequency Magnetic Field Immunity.(12888S)

Picture 18:Power Frequency Magnetic Field Immunity.(12888PK)

Picture 19:Power Frequency Magnetic Field Immunity.(12888SMP)

Picture 20:Power Frequency Magnetic Field Immunity.(12888BT8)

7 List of Tables

8 List of Figures

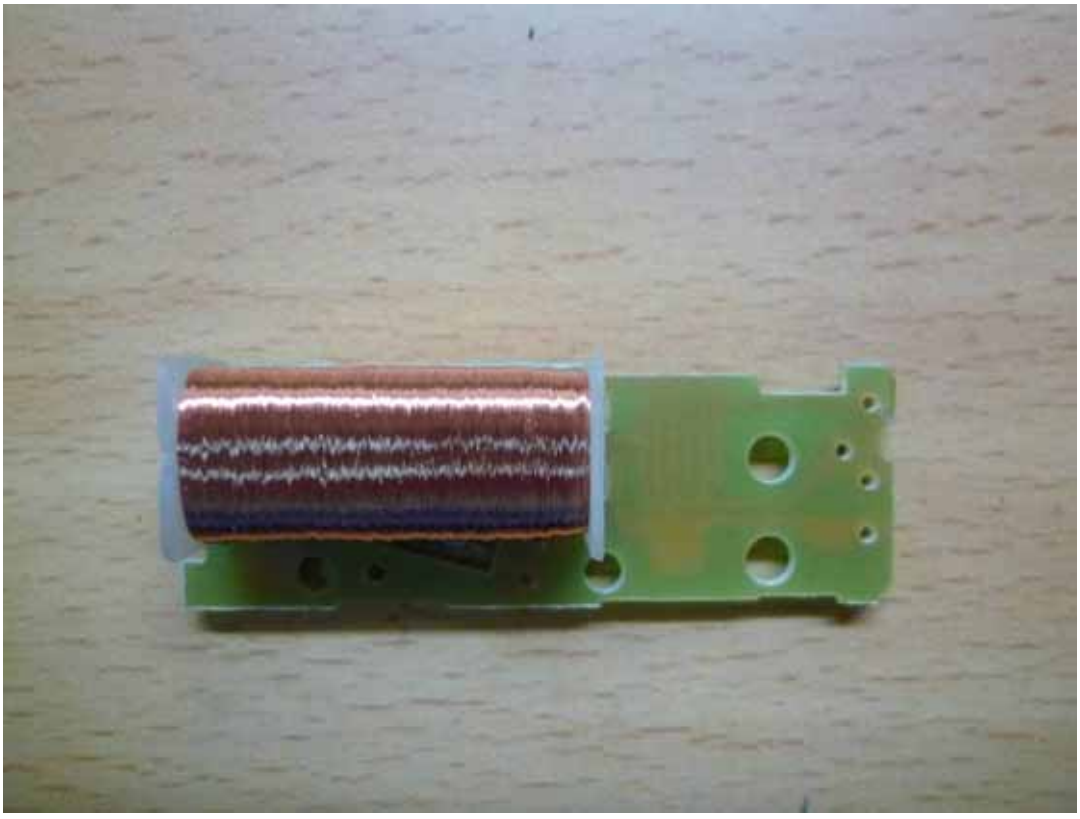
9 List of Pictures

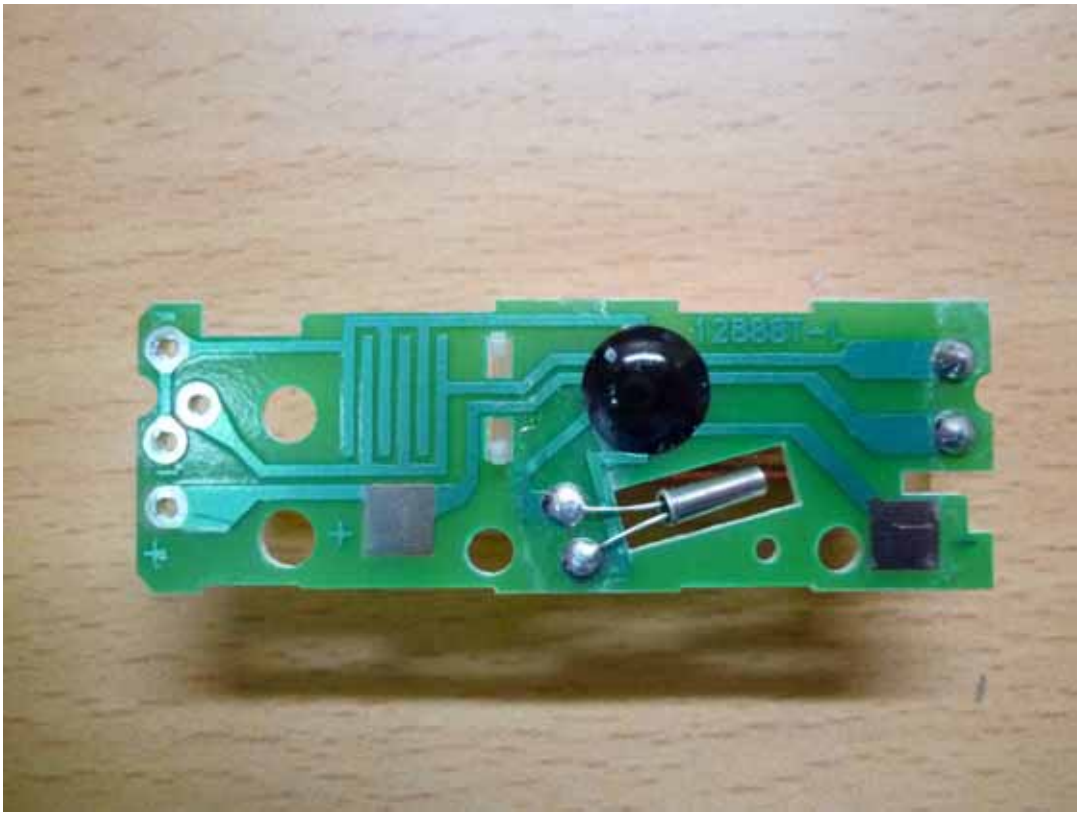
Product: Quartz Clock Movement & Clock

Type Designation: 12888ST

Product: Quartz Clock Movement & Clock

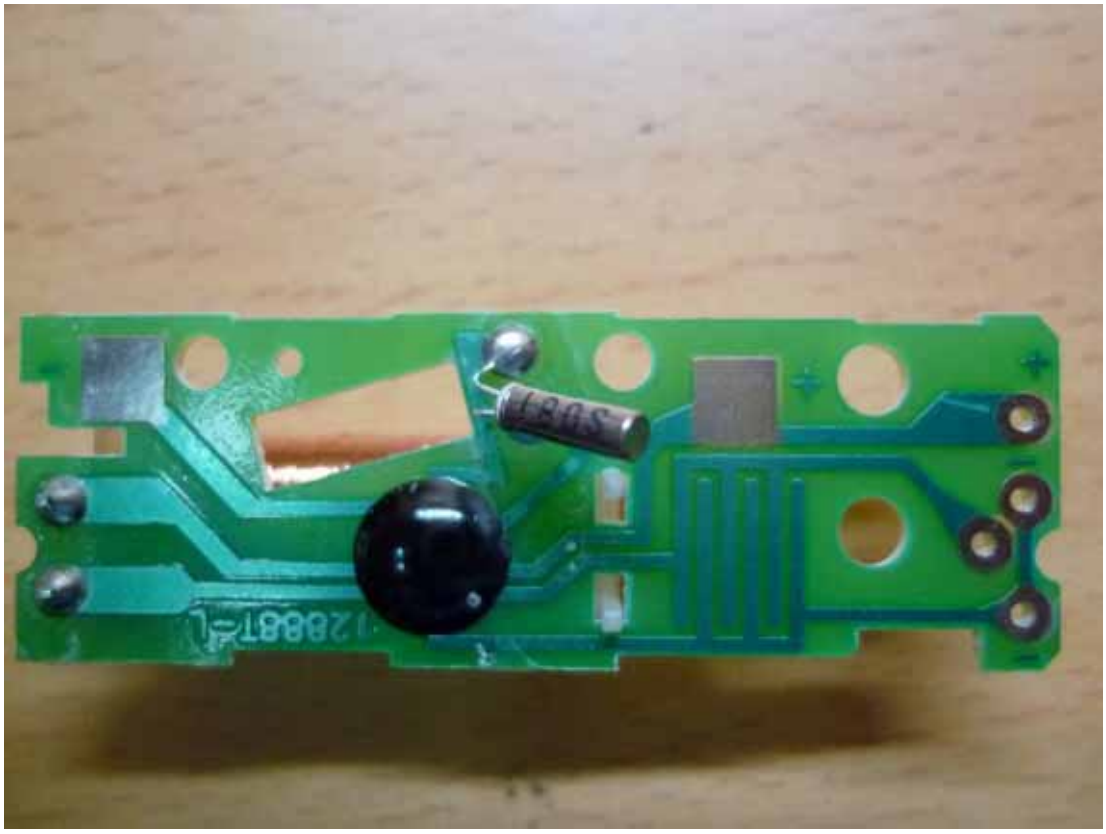
Type Designation: 12888ST





Product: Quartz Clock Movement & Clock

Type Designation: 12888ST

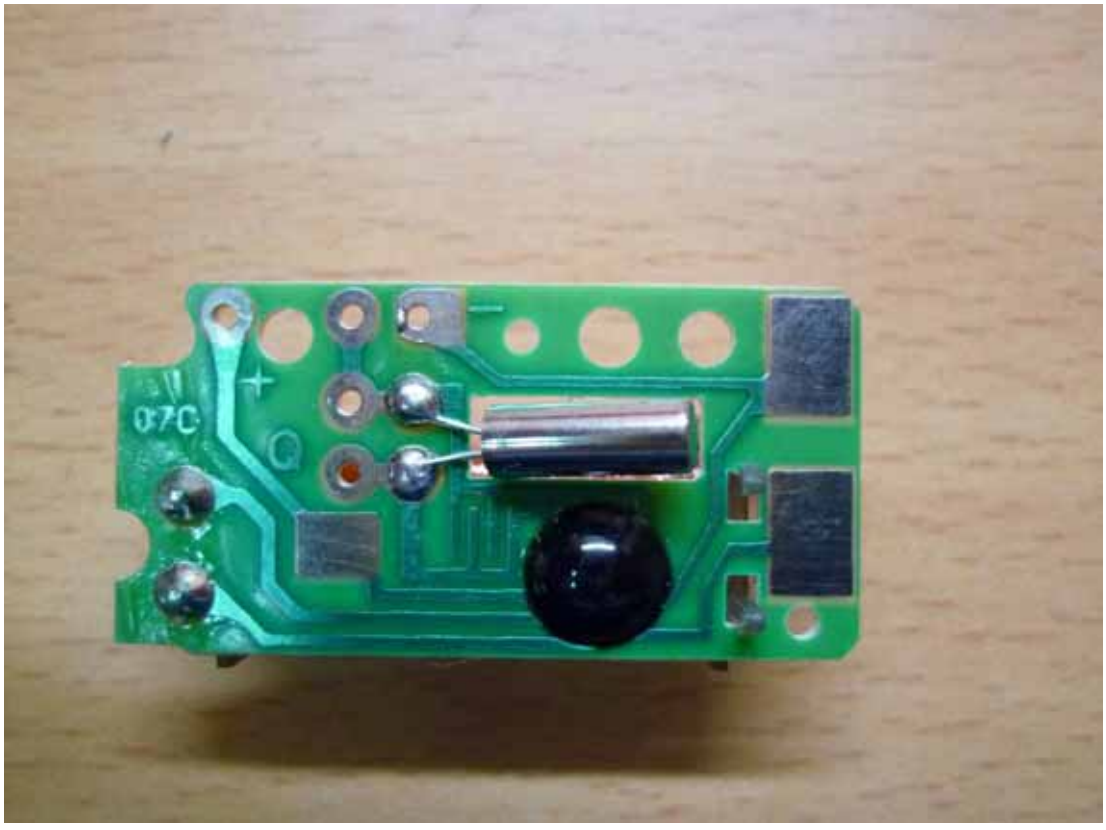


Product: Quartz Clock Movement & Clock

Type Designation: 12888S

Product: Quartz Clock Movement & Clock

Type Designation: 12888S



Product: Quartz Clock Movement & Clock

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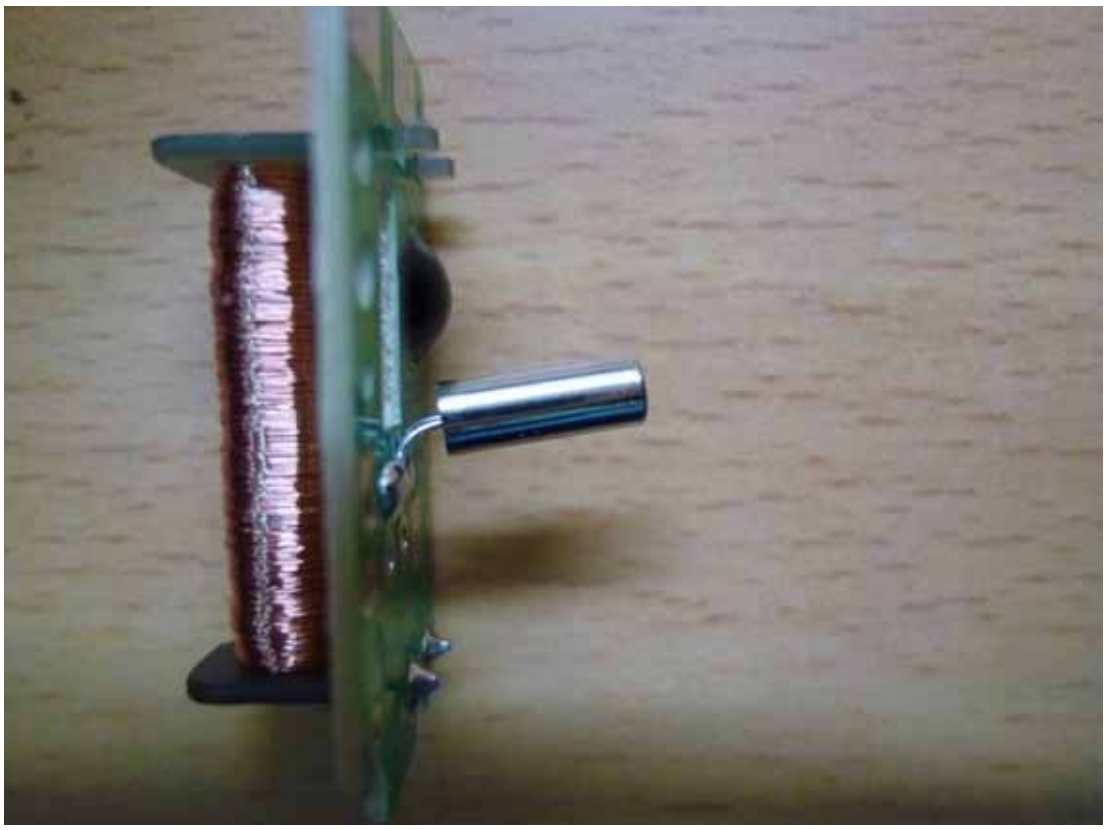


Product: Quartz Clock Movement & Clock

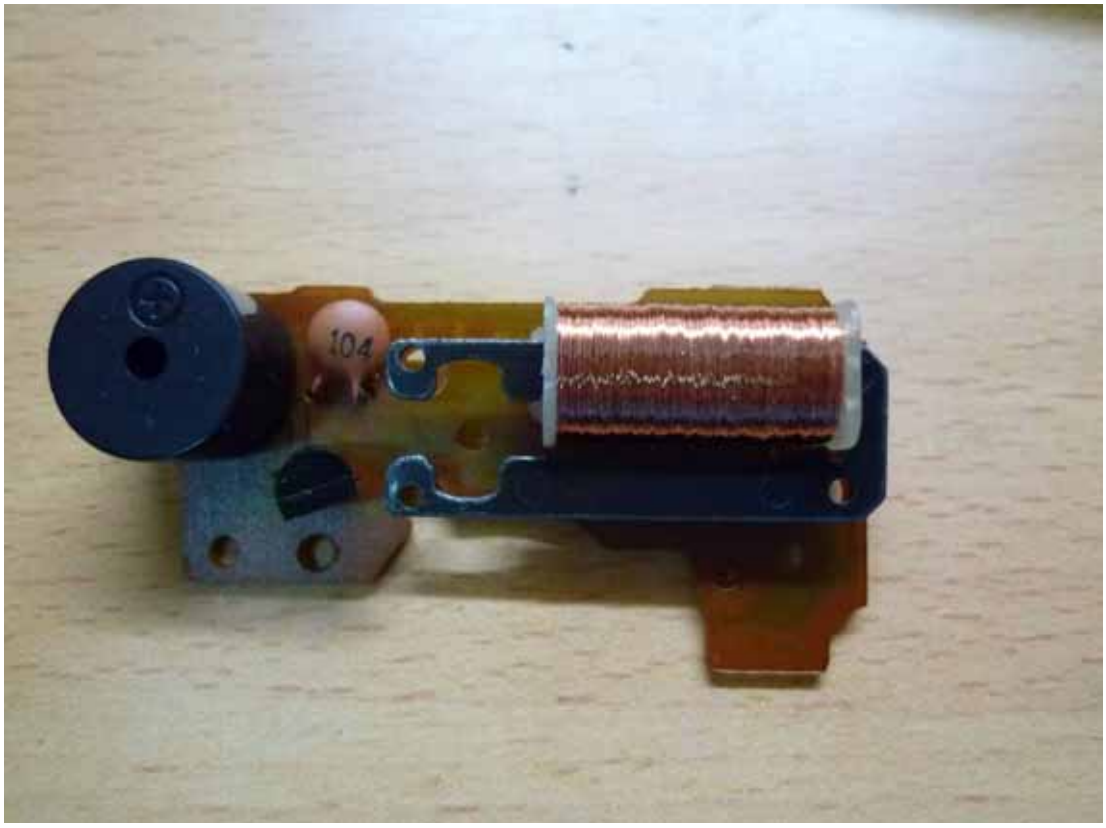
Type Designation: 12888PK

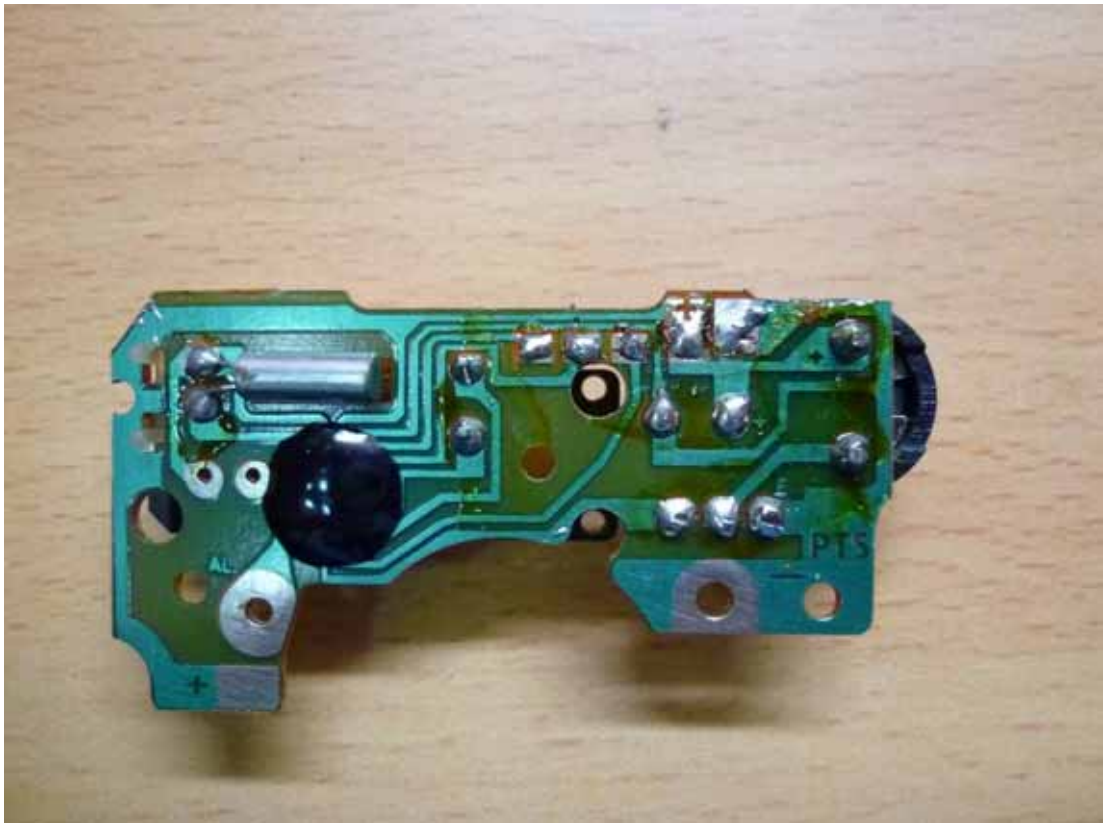
Product: Quartz Clock Movement & Clock

Type Designation: 12888PK

Product: Quartz Clock Movement & Clock

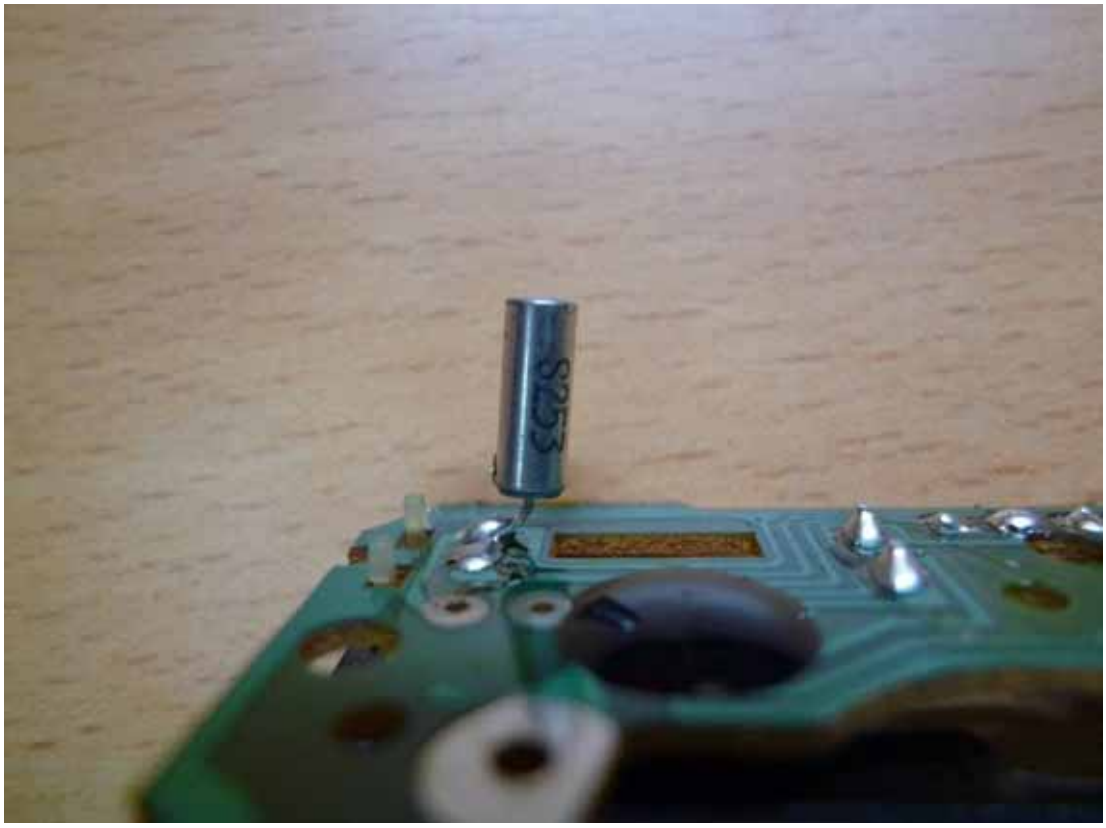
Type Designation: 12888PK





Product: Quartz Clock Movement & Clock

Type Designation: 12888PK

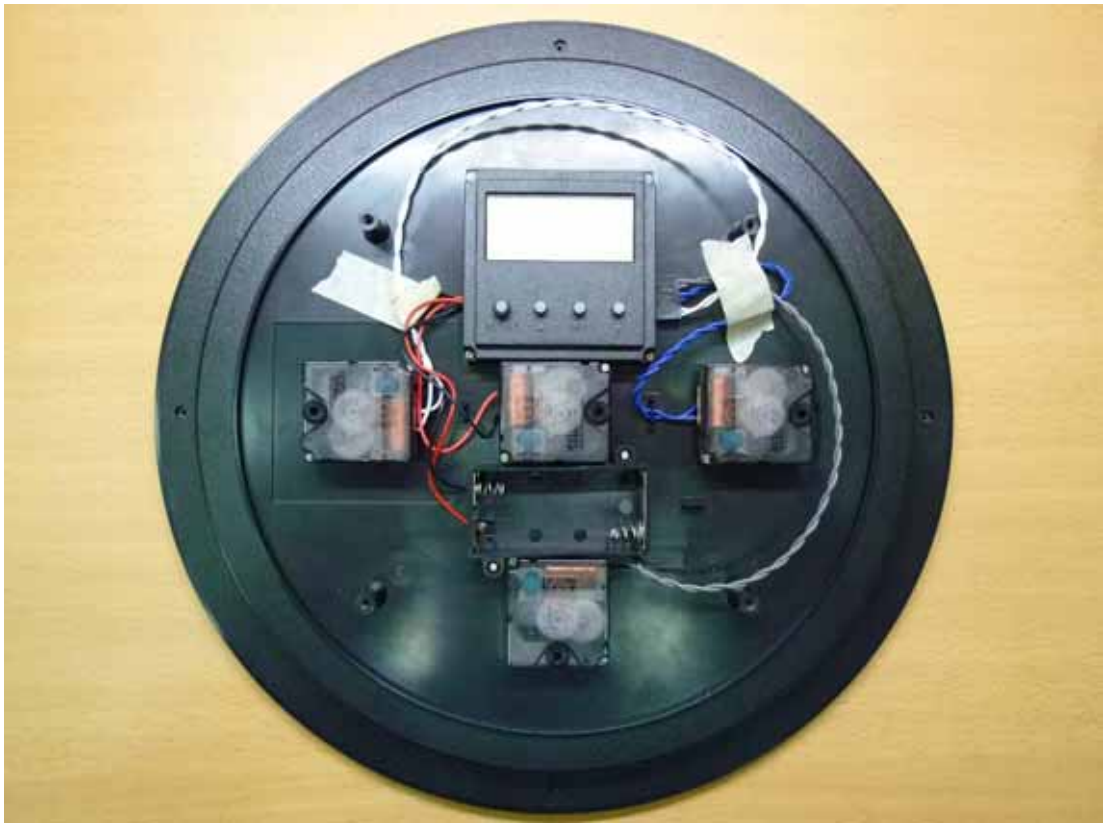


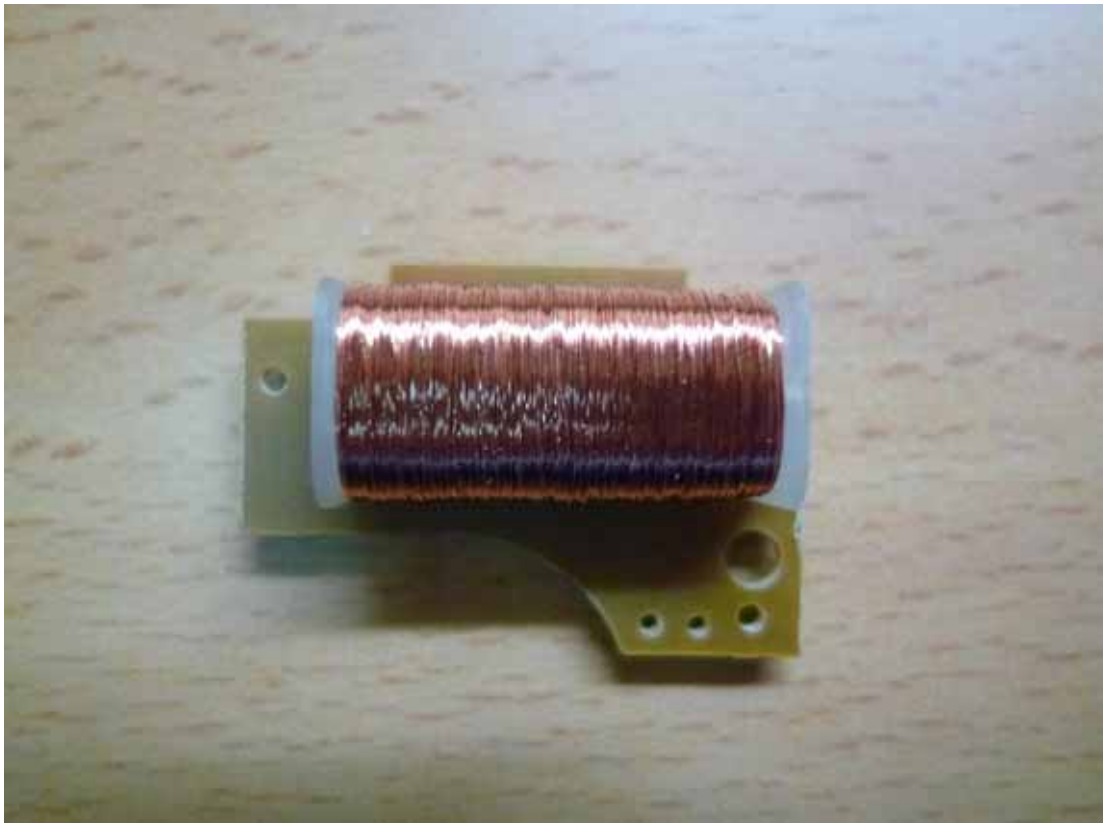
Product: Quartz Clock Movement & Clock

Type Designation: 12888SMP

Product: Quartz Clock Movement & Clock

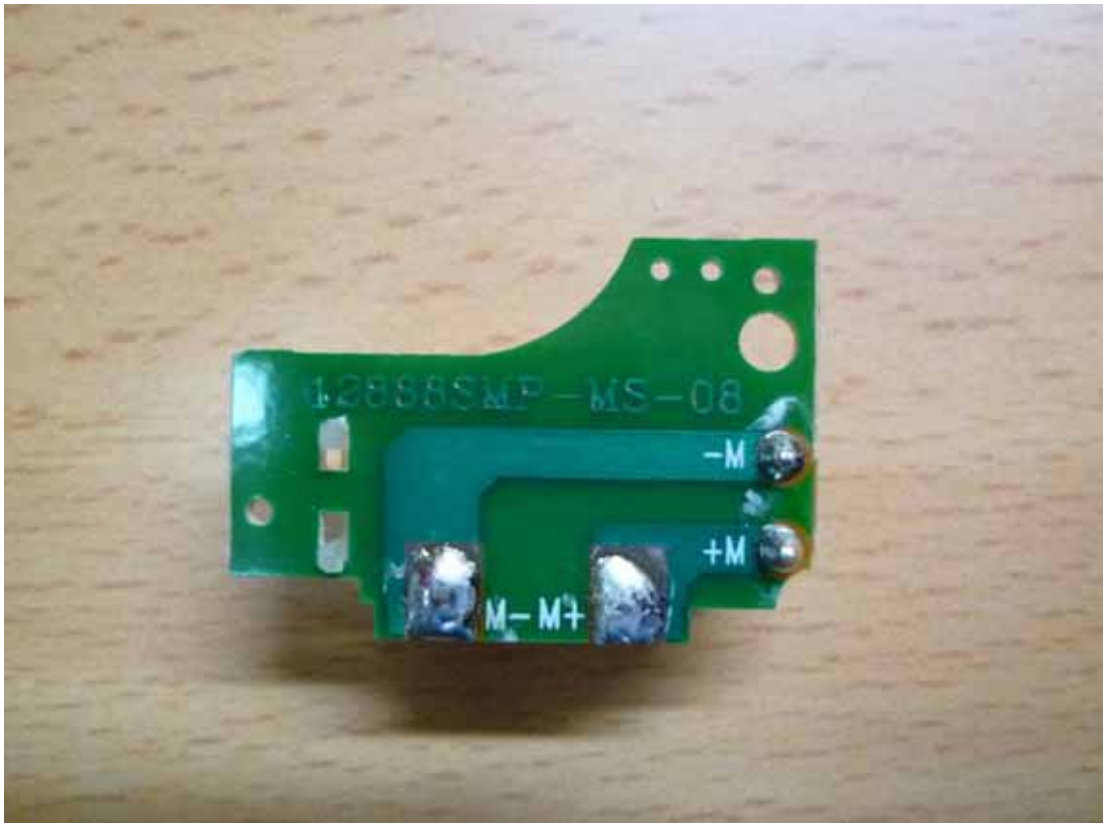
Type Designation: 12888SMP

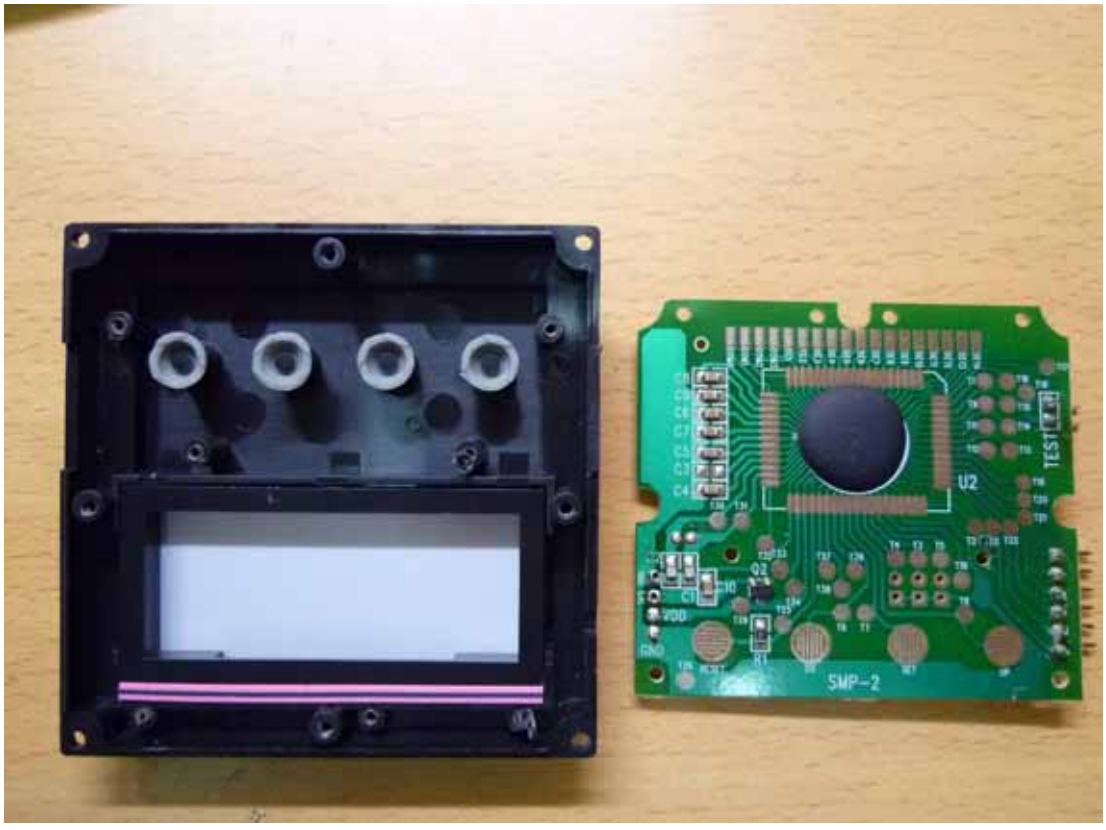




Product: Quartz Clock Movement & Clock

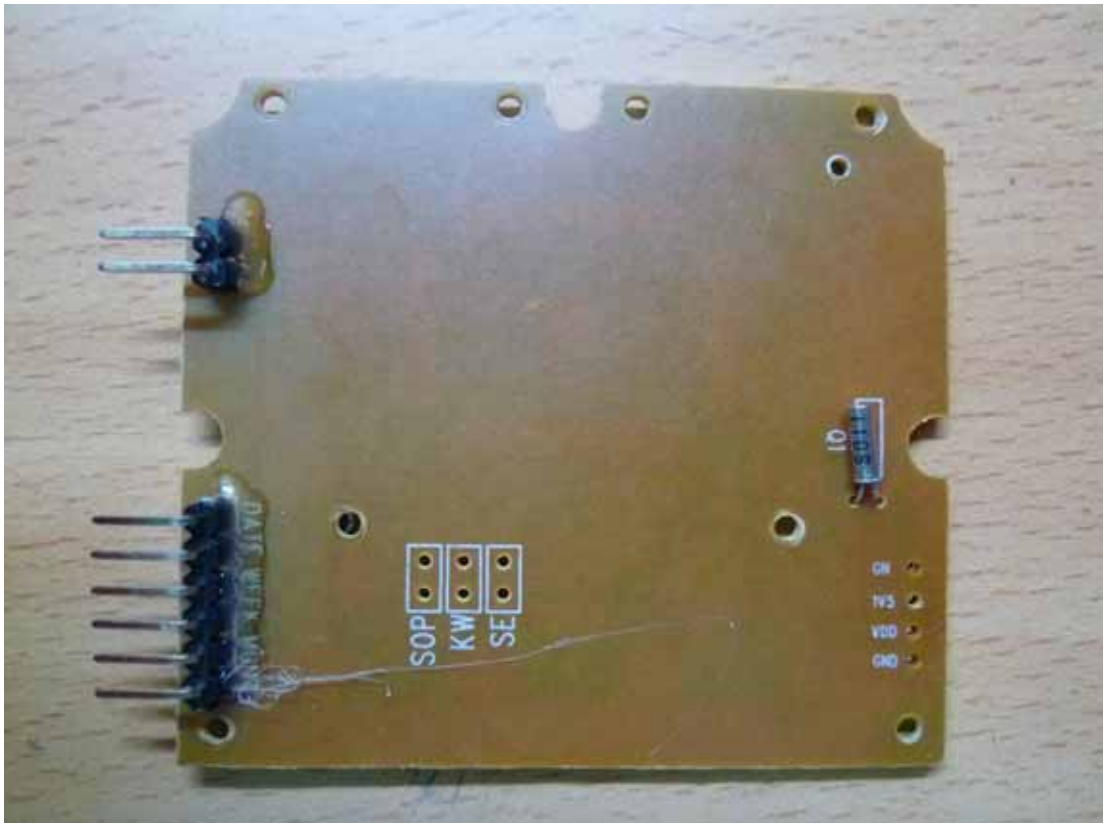
Type Designation: 12888SMP





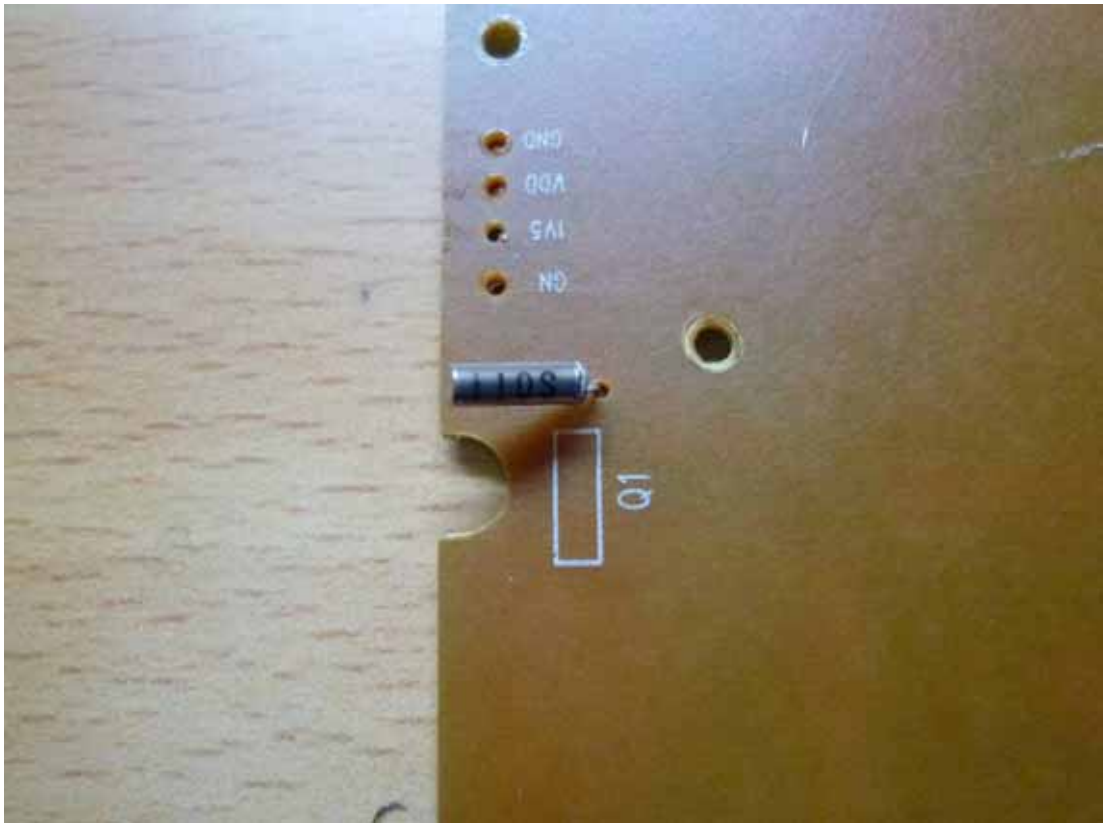
Product: Quartz Clock Movement & Clock

Type Designation: 12888SMP



Product: Quartz Clock Movement & Clock

Type Designation: 12888SMP



Product: Quartz Clock Movement & Clock

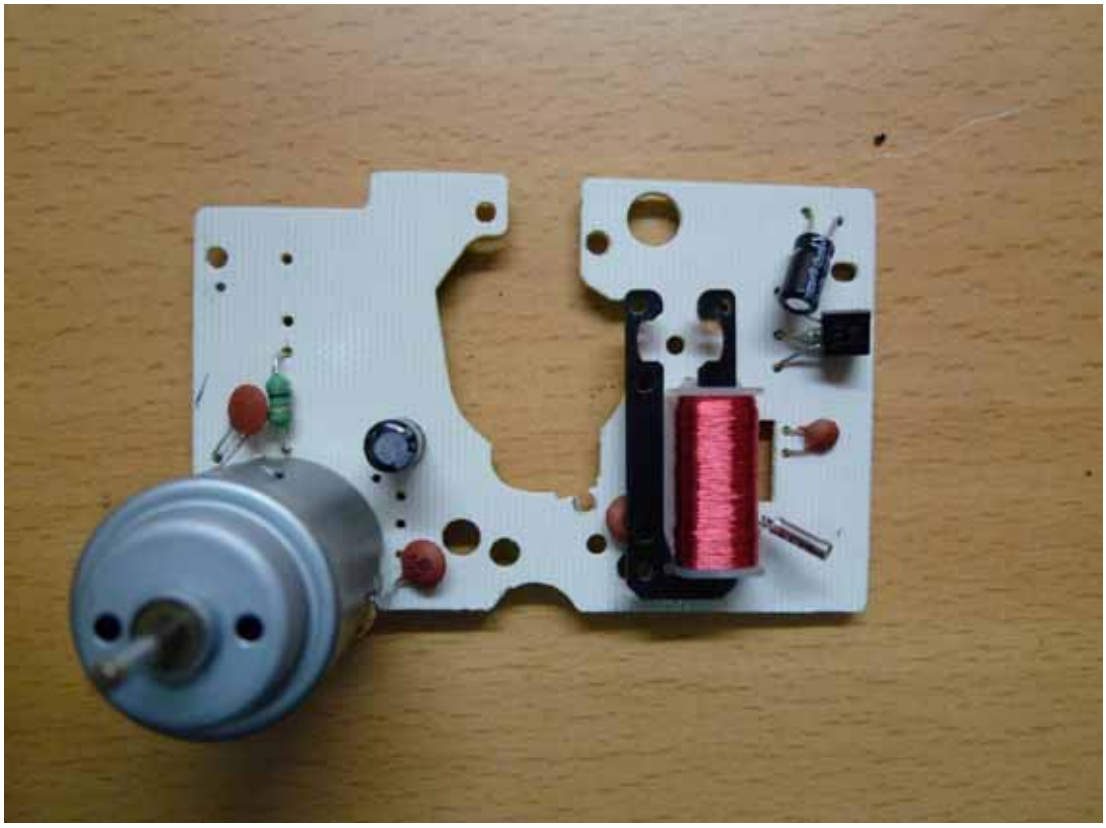
Type Designation: 12888BT8

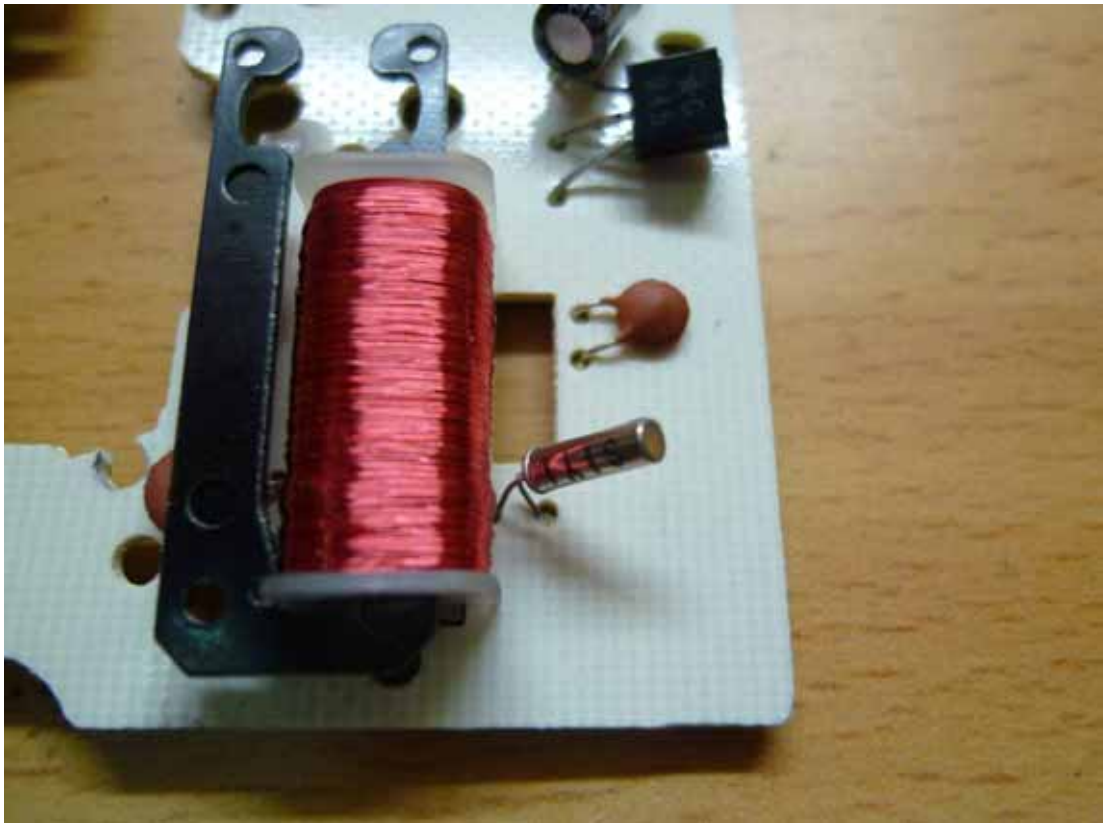
Product: Quartz Clock Movement & Clock

Type Designation: 12888BT8

Product: Quartz Clock Movement & Clock

Type Designation: 12888BT8





Product: Quartz Clock Movement & Clock

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