

SPECIFICATION FOR APPROVAL

MESSRS :

MODEL :

No.	Customer P/N	Kwang Sung P/N	Descriptions	K.P.Code
1		KST-F404HA-1A	FM TUNRE KSE TYPE: F404H	PKSTF404-HA0001A-0

DATE : 2002.04.24

承認 (APPROVAL)		
檢討	審查	承認
年 月 日		



KWANG SUNG

KWANG SUNG ELECTRONICS H.K. CO., LIMITED
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KS07QR0003-A



MESSRS :	FM TUNER PACK	DATE : 2002. 04. 24
MODEL : KST-F404HA-1A	SPECIFICATION	KP CODE : PKSTF404-HA0001A-0

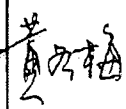

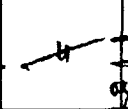
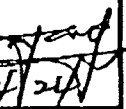
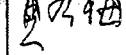

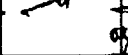

This is special specification which differs from our standard specification for customer.

1. ELECTRICAL CHARACTERISTICS

ITEM	DESCRIPTION

2. THE OTHERS

ITEM	DESCRIPTION

						DRAWN	DESIGNED	CHECKED	APPROVED
page 1	F404HA-1A1	page 2	F404HA-1A2	page 3	F404HA-1A3				
page 4	F404HA-1A4	page 5	-----	page 6	-----				

KWANG SUNG ELECTRONICS CO., LTD.

F404HA-1A1

1. APPLICATION

This specification cover the tuner to be used for FM broadcast reception, which FM Front End with Detector.

2. APPENDED DOCUMENTS

2-1. Dimensions and terminal connection.

Refer to the attached drawing No. (TOS - 074)

2-2. Schematic diagram.

As show in the attached drawing No. (KSD - F046 - 01)

3. RECEIVING METHOD

FM section is designed super heterodyne receiving circuit with RF.

Amp (As shown in the attached drawings)

4. ELECTRICAL SPECIFICATION & CHARACTERISTICS

4-1. Electrical specification

4-1-1	RECEIVING SYSTEM	UPPER SIDE BAND SUPERHETERODYNE SYSTEM
4-1-2	RECEIVING FREQUENCY	87.5 - 108.0 MHz
4-1-3	OPERATING SUPPLY VOLTAGE	+B VOLTAGE : 12.0 V
		TUNING VOLTAGE : 1.2 V - 9.0 V
4-1-4	INPUT IMPEDANCE	75 K Ω UNBALANCED
4-1-5	IF OUT PUT IMPEDANCE	300 K Ω UNBALANCED
4-1-6	IF	10.7 MHz
4-1-7	CURRENT DRAIN	27 \pm 10 mA

4-2. ELECTRICAL CHARACTERISTICS

NO	ITEM	CONDITION	SPECIFICATION			
			MIN	TYP	MAX	UNIT
1	SUPPLY VOLTAGE RANGE	GUARANTEED RANGE	10	12	13	V
2	POWER GAIN	GUARANTEED RANGE	30	38	46	dB
3	NOISE FIGURE	GUARANTEED RANGE	--	8	12	dB
4	GAIN DIFFERENCE	GUARANTEED RANGE	--	4	7	dB
5	IMAGE REJECTION	at 106.0 MHz	70	75	--	dB
6	IF REJECTION	at 90.0 MHz	70	80	--	dB
7	1/2 IF REJECTION	at 90.0 MHz	70	80	--	dB
8	2 X OSC REJECTION	at 90.0 MHz	70	80	--	dB
9	IF BAND WIDTH	at 98.0 MHz (-3dB)	350	500	650	KHz
10	OSC OUT VOLTAGE	at 98.0MHz 60dB 1KΩ LOAD	80	120	--	mVrms
11	SPURIOUS RADIATION	as PER FCC / CE RULE CONTENT	0	--	--	dB
12	AGC REJECTION	5V TO 0V	10	12	--	dB
13	LOCAL OSC DRIFT BY STRONG INPUT SIGNAL	at SIGNAL IS CHANGE FROM 60dB TO 120dB	--	±2	±20	KHz
14	LOCAL OSC DRIFT BY TEMPERATURE AND CHANGE OF P. G.	WHEN CHANGE OF 25°C IS GIVEN AT LOCAL OF 30°C	--	--	±400	KHz
			--	--	±6	dB
15	LOCAL OSC DRIFT BY HUMIDITY AND CHANGE OF P. G.	AFTER UNIT IS KEPT IN ATMOSPHERE OF 40±2°C, RELATIVE HUMIDITY OF 90% FOR 5 HOURS, FURTHER TO BE LEFT AS IT IS FOR 40 MINUTES IN NORMAL CONDITIONS.	--	--	±400	KHz
			--	--	±6	dB
16	LOCAL OSC DRIFT BY SUPPLY VOLTAGE AND CHANGE OF P. G.	AT CHANGE OF 10% FROM STANDARD VOLTAGE.	--	--	±200	KHz
			--	--	±3	dB

5. SPECIAL ENVIRONMENT TEST

5-1. VIBRATION TEST

At condition. amplitude and oscillation shall be 2mm and 1,000 C. P. M. respectively. There shall be no looseness after each 2 hours of top-bottom back-forth and right-left vibrations.

After this test the gain variation shall be less than 3dB and frequency drift shall be less than 200 KHz.

5-2. DROP TEST

After the packed tuner at 500cm height is dropped six times from each side, gain variation shall be less then 3dB and frequency drift shall be less than 200 KHz.

5-3. TEMPERATURE TEST

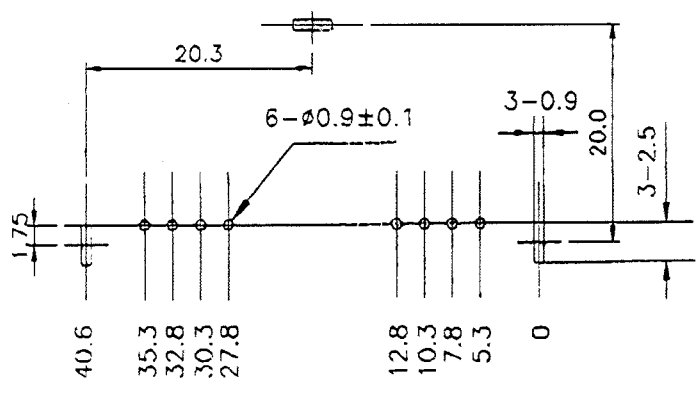
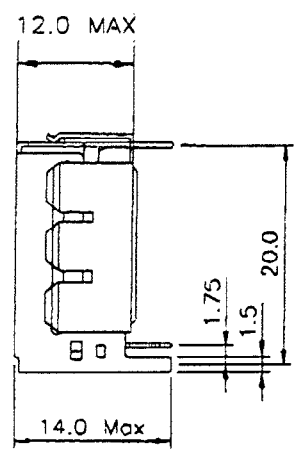
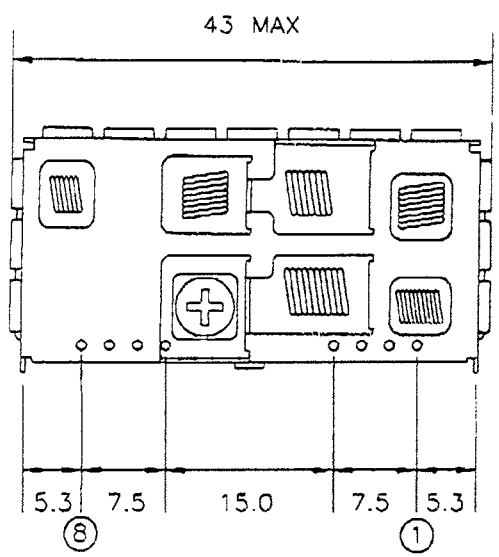
After the tuner shall be exposed for each 30 minutes in a test Chamber of temperature cycle at 20°C, 40°C, 60°C, 40°C, 20°C, 0°C, -20°C, 0°C, 20°C and then the tuner shall be operated satisfactorily electrical performance.

5-4. VT CALIBRATION (AT STANDARD TEST CONDITION)

FREQUENCY (MHz)	TUNING VOLTAGE	ALLOWADLE VOLTAGE
87.5	1.5 (V)	1.2 min (V)
90	2.0	
92	2.4	
94	2.8	
96	3.3	
98	3.8	
100	4.5	
102	5.2	
104	6.0	
106	7.0	
108	8.1	9.0 max



6/8

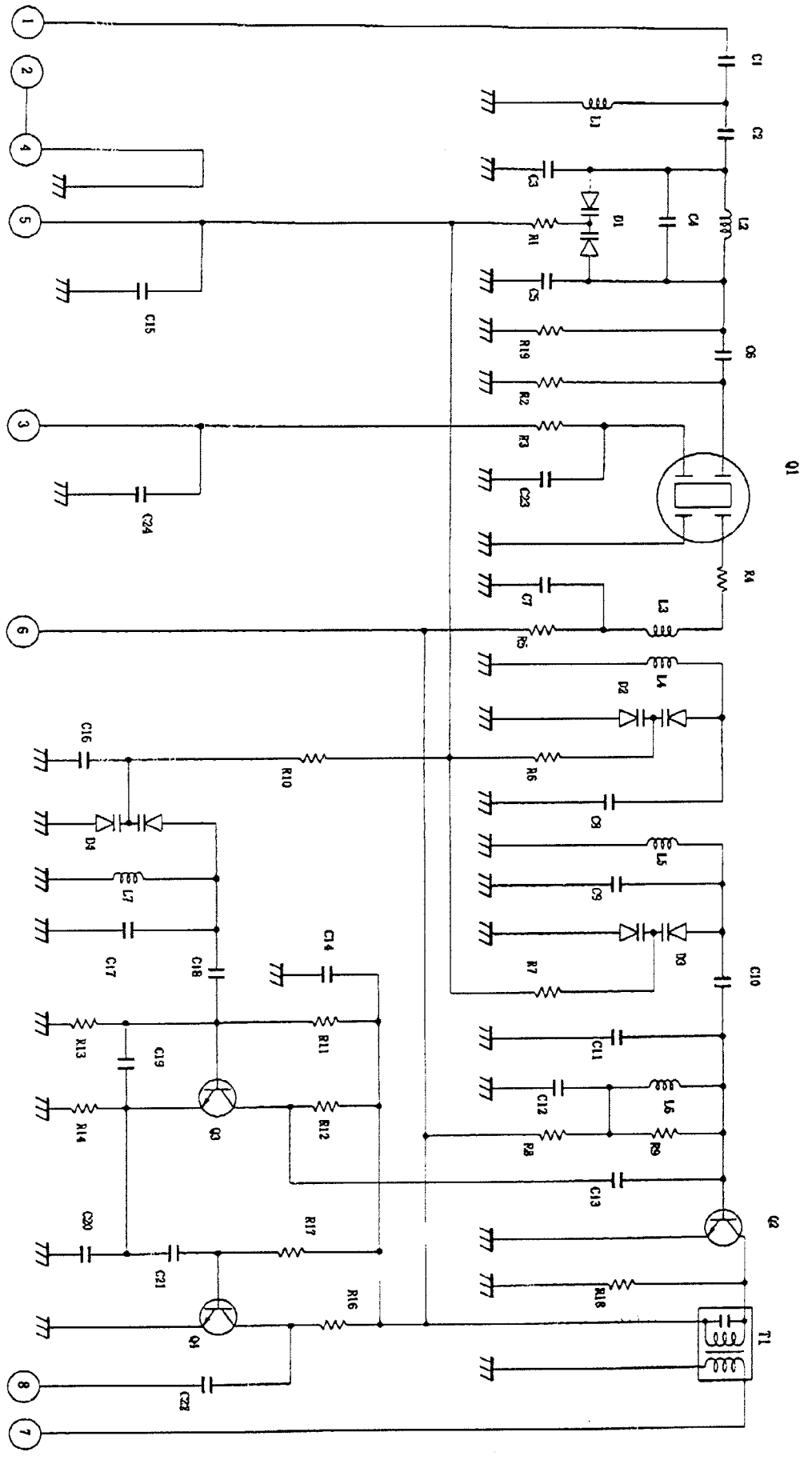


NO	TERMINALS
1	ANT
2	GND
3	AGC
4	GND
5	VT
6	B+
7	IF OUT
8	OSC OUT

NO	PART'S NO	PART'S NAME	MATERIAL	SIZE	TREATMENT	REMARK
MODEL NO : KST-F404HA-1A			UNIT: mm	SCALE: 1:1.5	DATE : 2002. 04. 24	
DRAWN	DESIGNED	CHECKED	APPROVED	DRAW NO	TOS - 074	
<i>黄少梅</i>	<i>Guang 24</i>	<i>[Signature]</i>	<i>[Signature]</i>		版本号: A	

光星电子生产技术部





EXTERNAL	TERMINAL
1	ANT 750ohm
2	GND
3	AGC
4	GND
5	VT
6	B+
7	IF OUT
8	OSC OUT
9	
10	

DIFFERENCE				DRAWN				DESIGNED				CHECKED				APPROVED			
NO.	PART NO.	PART'S NAME	MATERIAL	NO.	PART NO.	PART'S NAME	MATERIAL	NO.	PART NO.	PART'S NAME	MATERIAL	NO.	PART NO.	PART'S NAME	MATERIAL	NO.	PART NO.	PART'S NAME	MATERIAL

MODEL NO : KST-P404HA-1A
 UNIT: mm
 SCALE: DATE: 02. 04. 24
 DRAW NO: KSD-P046-01
 版本号: A

KWANG SUNG ELECTRONICS CO.,LTD.

SHEN ZHEN KWANG SUNG ELECTRONICS CO., LTD

MESSRS :	INSPECTION REPORT	DATE : 05.04.2002
MODEL :		SPEC. NO. :

REPORT NO. :

NAME		KST-F404HA-1			TA. & HUMIDITY					26°C 66%					
ITEM		FM ETR TUNER			INSPECTOR					方芳					
NO.	TEST ITEM	T. P (MHz)	CONDITION	SPEC	1	2	3	4	5	6	7	8	9	10	\bar{X}
01	TUNING VOLTAGE	87.5	-----	1.40~1.60V	1.49	1.50	1.51	1.51	1.48						1.50
		108.0	-----	7.00~8.00V	7.55	7.50	7.54	7.61	7.48						7.54
02	USABLE SENSITIVITY	90.1			0	0	-1	0	0						-0.2
		98.1	AT S/N=30dB	12dBu max	-1	-2	-2	-2	-1						-1.6
		106.1			-1	-2	-3	-2	-2						-2.0
03	POWER GAIN	98.1		30~46dB	32.5	31.9	32.4	31.8	31.5						32.0
04	S/N RATIO	98.1	60dBu	55dB min	63	62	62	63	62						62.4
05	IF REJECTION	90.0	AT S/N=30dB	70dB min	120↑	120↑	121↑	120↑	120↑						120↑
06	IMAGE REJECTION	106.0	AT S/N=30dB	70dB min	90	122↑	123↑	122↑	88						109↑
07	1/2 IF REJECTION	90.0	AT S/N=30dB	70dB min	100	100	100	100	100						100
08	2 X OSC REJECTION	90.0	AT S/N=30dB	70dB min	100	100	100	100	100						100
09	OSC OUT VOLTAGE	98.1	60dBu&1KLOAD	80mV min	138	135	132	131	137						135
10	AGC REJECTION	98.1	5V TO 0V	10dB min	14	13	12	12	15						13.2
11	LOCAL OSC DRIFT BY STRONG INPUT SIGNAL	98.1	at SIGNAL IS CHANG FROM 60dB TO 120dB	±20KHz max	0.4	0.3	0.2	0.4	0.3						0.32

INSTRUMENT USED	REMARKS
SSG : SG--1501 SET : Car Set. TIME : Afternoon. TEST STATION : QA Shield Room.	

Lot NO.	Quantity/Check	Percentage (%)	Judge	Approved BY	Checked BY	Drawn BY
SAMPLE	5/5	100%	<div style="border: 2px solid black; border-radius: 50%; padding: 10px; display: inline-block;"> QC-13 2002.4.05 合格 </div>			