

S P E C I F I C A T I O N

LG Innotek Co., Ltd.

A P P D.	C H K D.	D S G D.	MODEL NO	T A D C - H 2 0 7 F
			DOCUMENT NO	B C 4 0 3 1 0

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								TITLE:	
								SPECIFICATION	
								DOCUMENT NO:	
SYMB	NO	APPD	CHKD	DSGD				BC40310 (1/26)	

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1. Common
- 1- 1. Application
- This specification applies to TMI type (RF Front-End system) for TV, VTR
- 1- 2. Structure
- Refer to the attached assembly drawing.
- 1- 3. Circuit
- Refer to the attached circuit diagram.
2. General specifications.
- 2- 1. Applicable broadcasting system
- M NTSC / US CH
- 2- 2. Receiving system
- Upper Heterodyne
- 2- 3. Intermediate frequency
- Picture intermediate frequency : 45.75 MHz
- Sound intermediate frequency : 41.25 MHz
- 2- 4. Receiving channel
- VHF LOW : 2 ~ B Ch
- VHF HIGH : C ~ W+11 Ch
- UHF : W+12 ~ 69 Ch
- 2- 5. Output channel of modulator
- US 3 / 4 Ch

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	Terminal NO. 2
3 Ch	OPEN
4 Ch	GND

2- 6. Input / Output condition

ANT nominal impedance

ANT IN : 75Ω unbalance

ANT OUT : 75Ω unbalance

Video in impedance : 0.7kΩ ~ 1.3kΩ (typ. 1kΩ)

Audio in impedance : 10kΩ min.

Control impedance : 30kΩ min. (typ. 100kΩ)

Video out load : 10kΩ

Audio out load : 100kΩ

2- 7. Operating temperature range

Temperature : -10℃ ~ +60℃

Humidity : less than 85%RH

2- 8. Storage temperature range

Temperature : -20℃ ~ +70℃

Humidity : less than 90%RH

2-9. Guarantee voltage for operation

Terminal	Supply voltage			
	min.	typ.	max.	unit
+B	4.8	5.0	5.2	Vdc
MB	4.8	5.0	5.2	
TU	29.0	32.0	34.0	
CONTROL(MD:ON)	4.8	5.0	5.2	

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2-10. Maximum ratings

Terminal	Supply voltage	Unit
+B	6.0	Vdc
MB	6.0	
TU	35.0	
CONTROL(MD:ON)	6.0	

(note) Within “PB” supply voltage at SCL,SDA,terminal.

2-11. Current consumption

Terminal	Current consumption			
	min.	typ.	max.	unit
+B	–	150	180	mA
MB	–	50	56	
TU	–	1.5	5.0	
CONTROL(MD:ON)	–	47.0	173	μA

2-12. PLL characteristics of tuner section

2-12-1. I2C data format

	MSB							LSB	
Address byte	1	1	0	0	0	MA1	MA0	0	A
Divider byte 1	0	N14	N13	N12	N11	N10	N9	N8	A
Divider byte 2	N7	N6	N5	N4	N3	N2	N1	N0	A
Control byte	1	CP	0	0	0	R1	R0	0	A
B AND SW byte	0	0	0	0	BS3	BS2	BS1	BS0	A

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Where:

- A : Acknowledge bit
- Address Selection

“ADSW” 단자전압	MA1	MA0
0~0.1 × PB	0	0
OPEN	0	1
0.4 × PB ~ 0.6 × PB	1	0
0.9 × PB ~PB	1	1

- CP : Charge pump current (CP = 0 = 50μA, CP = 1 = 200μA)
- N14~ N0 : Programmable divider byte
$$N = N14 \times 2^{14} + N13 \times 2^{13} + \text{---} + N1 \times 2^1 + N0$$
- Band switching byte

	BS3	BS2	BS1	BS0
UHF	1	0	0	0
VHF HIGH	0	0	1	0
VHF LOW	0	0	0	1

2-12-2. Oscillator frequency calculation

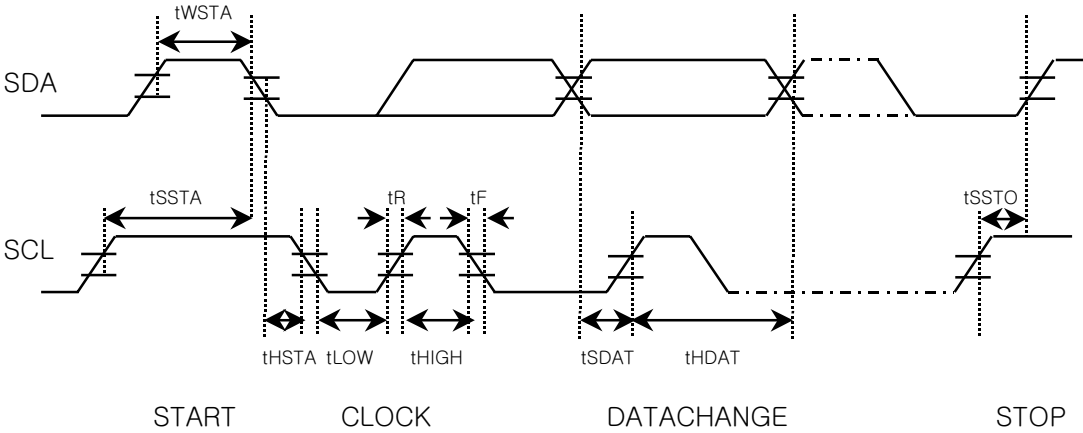
- $F_{osc} = F_{ref} \times 8 \times N$
- Fosc : Locked oscillator frequency
 - Fref : 4MHz/512 = 7.8125kHz
 - N : Oscillator frequency data

2-12-3. Input Signal Level (SCL, SDA)

INPUT Signal level	MIN	MAX	Unit
High level	3.0	5.5	V
Low level	-	1.5	

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2-12-4 I²C BUS Time



		MIN	TYP	MAX	단 위
fSCL	SCL clock frequency	0		400	kHz
tWSTA	Start waiting time	1300			nsec
tHSTA	Start hold time	600			"
tLOW	Low clock pulse width	1300			"
tHIGH	High clock pulse width	600			"
tSSTA	Start set-up time	600			"
tHDAT	Data hold time	1300			"
tSDAT	Data set-up time	600			"
tR	Rise time			300	"
tF	Fall time			300	"
tSSTO	Stop set-up time	600			"

2-13. Test condition

Terminal	Supply voltage	Unit	Remarks
+B	5 ± 0.1	Vdc	Ripple:10mVp-p max.
MB	5 ± 0.1	Vdc	
TU	32 ± 2	Vdc	
CONTROL	5 ± 0.1	Vdc	
Ambient temperature	25 ± 5	℃	
Relative humidity	65 ± 10	%RH	

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2-14. Measuring instruments

2-14-1. RF-modulator section

Audio analyzer	: 8903B	HP
Television demodulator	: 1450-1	TEKTRONIX
Spectrum analyzer	: 8568B	HP
Network analyzer	: 8752A	HP
TV pattern generator	: TG-7/1	SHIBASOKU
	3900N	NIHON TSUSHINKI
Video noise meter	: 925D/1	SHIBASOKU

2-14-2. IF section

TV pattern generator	: TG-7/1	SHIBASOKU
	TG2000	TEKTRONIX
IF modulator	: RM54A	SHIBASOKU
	146F	EIDEN
RF converter	: RC51B	SHIBASOKU
	458C-X	EIDEN
Video Measurement	: VM700A	TEKTRONIX
Audio Analyzer	: 8903B	HP

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3. Electrical characteristics The unit stated in dBμV is defined the value at 75Ω terminal in this specification. (0 dBm = 109 dBμV) 3- 1. RF-modulator section									
Item					Specification				Note
					min.	typ.	max.	unit	
3-1- 1. Video modulation					75	80	85	%	Input signal : 1.0Vp-p white Measure at the output of the standard demodulator.
3-1- 2. Video limit modulation					87	93	99	%	Input signal : 1.5Vp-p stair-steps or ramp. Measure at the output of the standard demodulator.
3-1- 3. V/S ratio					10:3.8	10:4.0	10:4.1	-	Input signal :1.0Vp-p white V : S = 10 : 4 Measure at the output of the standard demodulator.
3-1- 4. Video amplitude frequency characteristics					-2.5	-0.5	+2.5	dB	Measure range : 0.1MHz ~ 4.2MHz Based on 1MHz
3-1- 5. Differential Gain (DG)					-	2	7	%	Input signal : 1.0Vp-p stair-steps Chrominance : 20 IRE Luminance : 0 ~ 90 %
3-1- 6. Differential Phase (DP)					-	2	7	deg	Input signal : 1.0Vp-p stair-steps Chrominance : 20 IRE Luminance : 0 ~ 90 %
3-1- 7. Video S/N					45	48	-	dB	Compensation of spectral luminance efficacy. RF output should be amped 12dB. (LGEC control method Measurement conditions. Measure at the out of the Standard demodulator. (TEKTRONIX 1450-1)
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Item					Specification				Note
					min.	typ.	max.	unit	
									S/N meter. (SHIBASOKU 925D-1 or 925C or equivalent) HPF : 100kHz, LPF : 4.2MHz SC TRAP : ON, WEIGHT : OFF Input signals : Video : 100% white signal Audio : none Video band : 0.1MHz ~ 4.2MHz
3-1- 8. Chroma beat (920kHz P.C.S. beat)					55	65	-	dB	Input signal : 0.4Vp-p 3.58MHz sine wave Use spectrum analyzer to measure the level of Fp + 0.92MHz The value is relative to the level of Fp without video modulation.
3-1- 9. Audio modulation (deviation)					32 (64)	40 (80)	48 (96)	kHz dev (%)	Input signal : -6.5dBs, (1.04Vp-p) 1kHz sine wave (100 % modulation = ± 25kHz dev.)
3-1-10. Audio maximum modulation					150 (300)	220 (440)	-	kHz dev (%)	Input signal : 1kHz sine wave The input should be adjusted to the level just before the saturation of the modulation.
3-1-11. Audio amplitude frequency characteristics					-3	+0.2 -0.6	+3	dB	Input signal : -6.5dBs, (1.04Vp-p) Measure range : 50Hz ~ 10kHz Based on 1kHz
3-1-12. Audio distortion					-	0.5	2.0	%	Input signals : Audio : -6.5dBs (1.04Vp-p), 1kHz sine wave Video : 1Vp-p color bar De-emphasis is on.(75μ sec)
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Item					Specification				Note	
					min.	typ.	max.	unit		
3-1-13. Audio S/N					48	54	-	dB	Input signals : Audio : -6.5dBs (1.04Vp-p), 1kHz sine wave Video : All black (sync. only) Use standard demodulator of inter-carrier system. De-emphasis is on. (75μ sec)	
3-1-14. Audio buzz					45	55	-	dB	Video input signal : 1Vp-p color bar Other conditions : same as item 3-1-13.	
3-1-15. Video carrier output level					63.5	66.0	68.5	dBμV	Video input signal : 1Vp-p 100% white signal.	
3-1-16. P/S ratio (sound carrier level)					-12.5	-14.5	-17	dB	Audio input signal : none Other conditions : same as item 3-1-15.	
3-1-17. Video carrier frequency					-150	-	+150	kHz	Video input signal : none	
3-1-18. Sound carrier frequency					4495	4500	4505	kHz	Audio input signal : none The measurements are taken after 1 min. from the power on.	
3-1-19. Outband spurious					-	-	39.5	dBμV	Video input signal : 1Vp-p color bar Measure range : 0 ~ 1GHz Except the range from Fp-4.6MHz to Fp+7.4MHz. Tuner local OSC leakage.	
					-	-	39.5	dBμV		
3-1-20. Inband spurious					60	-	-	dB	Input signals : Video : none Audio : none Measure range : Fp~Fp+4.5MHz.	
3-1-21. Terminal leakage					-	-	54	dBμV	Measure range : 0 ~ 1GHz except GND.	
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3-1-22. Stability

- 3-1-22-1. Video carrier frequency rise up time.
The time to approach the set value $\pm 100\text{kHz}$: within 3 seconds
- 3-1-22-2. Audio carrier frequency rise up time.
The time to approach the set value $\pm 5\text{kHz}$: within 10 seconds
- 3-1-22-3. Video carrier frequency shift by supply voltage drift.
Within $\pm 10\text{kHz}$ by $\pm 0.3\text{V}$ shift of the supply voltage.
- 3-1-22-4. Audio carrier frequency shift by supply voltage drift.
Within $\pm 3\text{kHz}$ by $\pm 0.3\text{V}$ shift of the supply voltage.

3-1-23. Thermal Stability

- 3-1-23-1. Thermal stability of video modulation.
Within $\pm 4\%$ based on the temperature of 25°C .

※ Unless otherwise specified, thermal stability tests shall be performed under the following conditions.

Measurement temperature range : $-10^{\circ}\text{C} \sim 60^{\circ}\text{C}$

Humidity range : $45\% \text{RH} \sim 85\% \text{RH}$

Test measurement order and time :
 $25^{\circ}\text{C} \rightarrow -10^{\circ}\text{C} (2\text{H}) \rightarrow 10^{\circ}\text{C} (1\text{H}) \rightarrow 25^{\circ}\text{C} (1\text{H}) \rightarrow 45^{\circ}\text{C} (1\text{H}) \rightarrow 60^{\circ}\text{C} (2\text{H})$
- 3-1-23-2. Thermal stability of video modulation.
Within $\pm 150\text{kHz}$ based on the temperature of 25°C .
- 3-1-23-3. Thermal stability of audio modulation.
Within $\pm 20\%$ based on the temperature of 25°C .
- 3-1-23-4. Thermal stability of video modulation.
Within $\pm 10\%$ on the temperature of 25°C .
- 3-1-23-5. Thermal stability of P/S ratio
Within $\pm 3.0 \text{ dB}$ based on the temperature of 25°C , but the P/S ratio itself should not be less than 13 dB.

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3- 2. ANT SW section

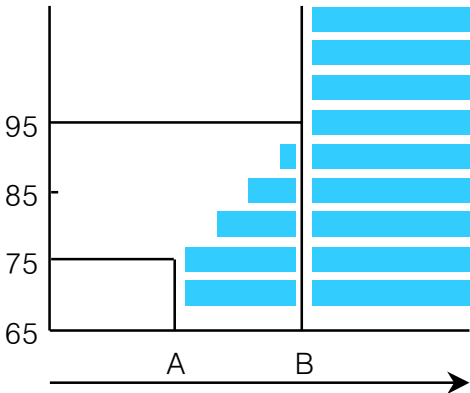
Unless otherwise specified, measurement range shall be 54MHz ~ 810MHz,
and unused RF terminals shall be terminated by rated impedance
Terminator.

Item	Specification				Note
	min.	typ.	max.	unit	
3-2-1. Insertion loss	-	5	6	dB	ANT IN to ANT OUT mode : TV (at MD OFF)
3-2-2. VSWR I	-	3.5	4.5		ANT IN Terminal mode : TV (at MD OFF) 54MHz ~ 810MHz
3-2-3. VSWR II	-	2	4		ANT OUT terminal mode : TV (at MD OFF) 54MHz ~ 810MHz
	-	2	3		mode : VTR (at MD ON) 61MHz ~ 72MHz
3-2-4. Isolation	60	65	-	dB	Isolation from ANT OUT to ANT IN mode : VTR (at MD ON) 61MHz ~ 72MHz
3-2-5. ANT IN leakage					
- MD	-	-	9.5	dB μ V	mode : VTR (at MD ON) RF-modulator section :
- TU OSC	-	-	52	dB μ V	none input signal Tuner OSC leakage.
3-2-6. 2nd Harmonics inter modulation	55	64	-	dB	f1/(f1+f2) ratio
					mode : TV (at MD OFF)
</					

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Item					Specification				Note		
					min.	typ.	max.	unit			
3-2-7. Cross modulation					55	62	-	dB	Then take the smallest ratio from the sideband to f2 as cross modulation value.		
									item	freq(MHz)	level(dB) μ V
									f1	91.25	105
									f2	193.25	80
									f1 is 40% AM modulated by 15.75KHz sine wave. f2 is not modulated.		

3- 3. Tuner section										
When the test characteristics, test point is pin no.16/if output terminal.										
Item					Specification				Note	
					min.	typ.	max.	unit		
3-3-1. IF Rejection									75Ω terminated	
		UHF			60	90	-	dB		ANT INPUT level 65dB μ V
VHF	HIGH			60	90	-				
	LOW			50	80	-				
		UHF			40	60	-	dB		ANT INPUT level 95dB μ V
VHF	HIGH			40	65	-				
	LOW			40	60	-				
3-3-2. Image Rejection									75Ω terminated	
		UHF			45	60	-	dB		ANT INPUT level 65dB μ V
VHF	CATV			45	70	-				
	13 ~ 7			60	75	-				
	6 ~ 2			60	75	-				
		UHF			40	55	-	dB		ANT INPUT level 95dB μ V
VHF	CATV			40	60	-				
	13 ~ 7			40	60	-				
	6 ~ 2			40	60	-				
3-3-3. 920kHz Color Beat Rejection									ANT INPUT level p:60dB μ V (75Ω terminated) c:44dB μ V (75Ω terminated) s:54dB μ V (75Ω terminated)	
		UHF			50	80	-	dB		
		VHF			50	80	-			
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Item					Specification				Note		
					min.	typ.	max.	unit			
3-3-4. CH 6 beat					45	60	-	dB	ANT INPUT level desire : 60dB μ V (75 Ω terminated) undesire : 54dB μ V (75 Ω terminated)		
3-3-5. CH A-5 beat					45	60	-	dB	ANT INPUT level desire : 60dB μ V (75 Ω terminated)		
3-3-6. CB rejection.					0.535 MHz ~ 30 MHz -7dBm min				desire : 55.25MHz ~ 83.25MHz (Ch.2 ~ Ch.6) -66dBm		
3-3-7. 1% Cross modulation					(dB μV) ↑ desire input signal 75Ω terminated  Un-desire signal (dBμV)						
					CH		A(dB μ V)		B(dB μ V)		
					UHF		67		84		
					VHF	W+11 ~ J	67		89		
						13 ~ 2	67		89		
					Cross modulation value should be within hantched area. ※ Tuner should be measured for 1% cross modulation with $\pm$ 2 channel undesired signal.						
3-3-8. +B shift					CH	min.	typ.	max.	unit.	note	
					UHF	-	-	250	kHz	B $\pm$ 1%	
					VHF HIGH	-	-	250			
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3-3-9. Over range	CH	Vtu		min.	typ.	max.	unit.
	UHF	28.0 V		2.0	-	-	MHz
		0.5 V		2.0	-	-	
	VHF	28.0 V		2.0	-	-	
		0.5 V		2.0	-	-	
3-3-10. Noise Figure	CH	min.	typ.	max.	unit.	note	
	UHF	-	9.0	14.0	dB		
	VHF HIGH	-	8.0	14.0			
	VHF LOW	-	8.0	13.0			
3-3-11. Power gain	UHF	23	33	-	dB		
	VHF	23	33	-			
3-3-12. Power gain deviation	UHF	-	6	12	dB		
	VHF HIGH	-	6	12			
	VHF LOW	-	6	12			
3-3-13. Temperature shift	W+12 ~ 69	-	-	3000	kHz	25℃± 25℃	
	W+11 ~ J	-	-	3000			
	13 ~ 2	-	-	2000			

3-4. IF section

When the test electrical characteristics when there are no instruction.
fp input level is 70 dBμV and p/s ratio is -7 dB.

Item	Specification				Note
	min.	typ.	max.	unit	
3-4-1. Video S/N	45	47	-	dB	A figure in parentheses is spec by LGIT measurement system
	45	47	-		50% white signal. 87.5% modulation. Subcarrier trap : on HPF : 100 kHz, LPF : 4.2 MHz

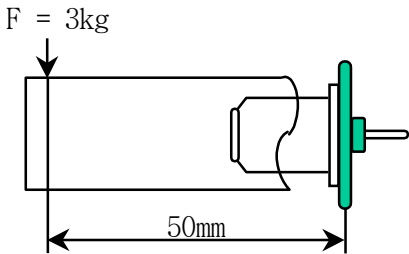
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Item					Specification				Note		
					min.	typ.	max.	unit			
3-4-2. Noise limiting sensitivity						45	48	dB μ V	A figure in parentheses is spec by LGIT measurement system		
AIR											
CATV									50% white signal. 87.5% modulation. Subcarrier trap : on HPF : 100kHz, LPF : 4.2MHz Video S/N=30dB		
UHF											
3-4-3. Video output level					0.8	1.0	1.2	Vp-p	standard color bar:87.5% mod.		
3-4-4. SYNC ratio					25	28.6	30	%	standard color bar:87.5% mod.		
Burst ratio					17	25	37				
3-4-5. Video amplitude frequency characteristics						-3	-1	+1	dB	Full sweep : 87.5% mod. based on 0.5 MHz	
1.0 MHz											
2.0 MHz											
3.0 MHz											
3.58MHz											
3-4-6. Sin ² 2T pulse response					70	90	-	%	Sin ² 2T pulse & bar:87.5% mod.		
3-4-7. Differential Gain					-	5	10	%	5 stair-steps : 87.5% mod. Set modulation at the peak of 5'th chroma signal		
3-4-8. Differential Phase					-	5	10	deg	5 stair-steps : 87.5% mod. Set modulation at the peak of 5'th chroma signal		
3-4-9. Y/C delay time					-100	0	+100	nsec	0.25 MHz standard Envelope delay meter.		
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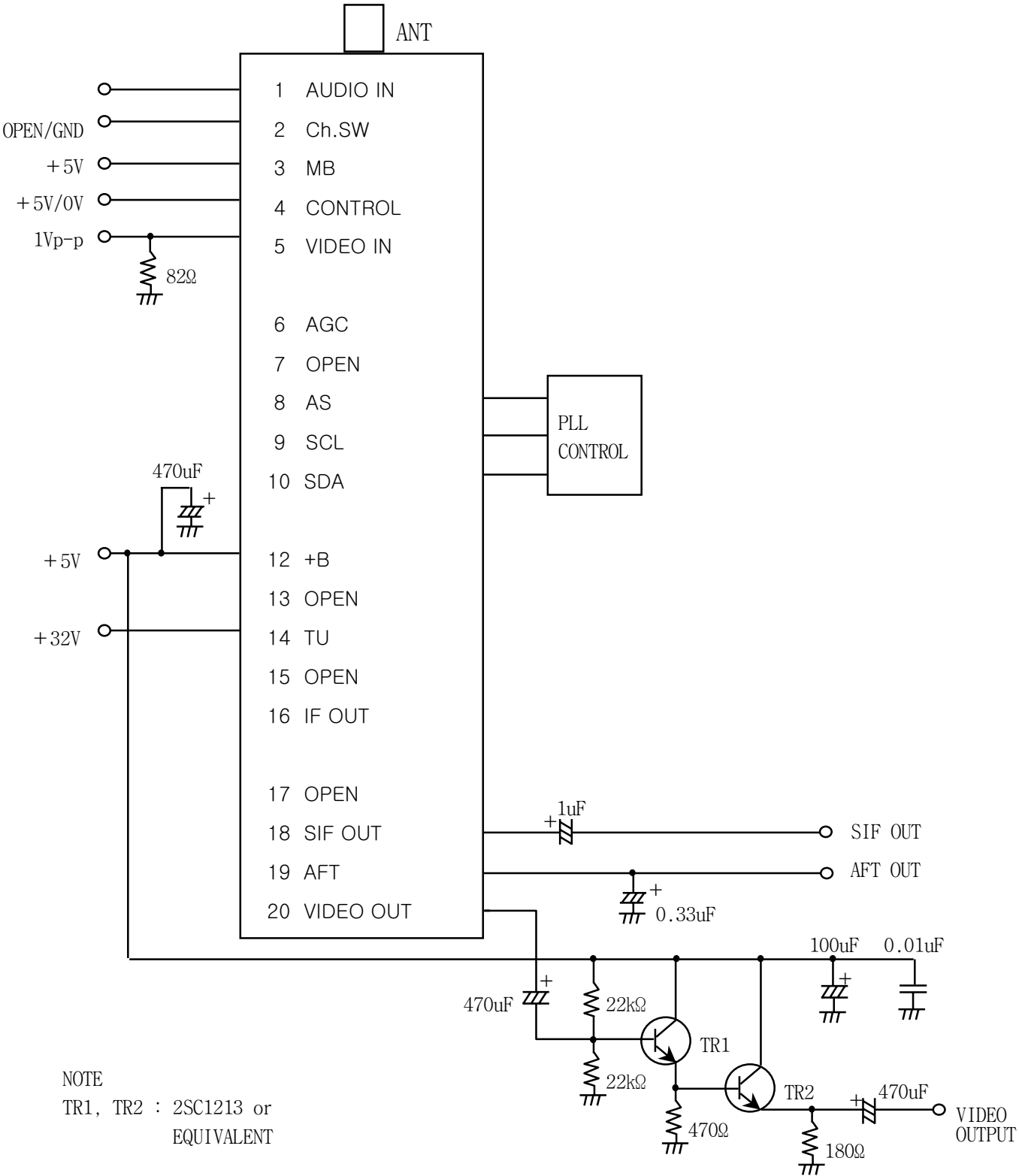
Item					Specification				Note	
					min.	typ.	max.	unit		
3-4-10. Audio output level					280	370	500	mVrms	1kHz /± 25kHz dev. standard color bar:87.5% mod.	
3-4-11. AFT alignment accuracy					1.7	2.5	3.1	Vdc	Alignment center : 2.5V IF input level : 90dB μ V P/S=-7dB standard color bar:87.5% mod.	
3-4-16. SIF Output Level					60	65	-	dB μ V	Video mod. : Color Bar 87.5% mod. RF INPUT Level = 70 dB μ V P/S = -6dB Measure peak of 4.5MHz carrier Level using Spectrum Analyzer and 1:10 Probe.	

4. ENVIRONMENTAL TESTS (規格□는 □期□에 대하여 □□ □□를 □□한다)									
Item					Specification			Note	
					TUNER	MODULATOR	IF		
4-1. Heat load teat					OSC frequency UHF : ± 2.5MHz VHF : ± 2.5MHz	Video modulation ± 8%max Video carrier frequency ± 150kHz max Video carrier output level ± 4dB max Audio modulation ± 2% max Audio carrier frequency ± 20kHz max P/S ratio ± 3dB max	Video S/N ± 6dB Video output ± 0.2Vp-p max Noise limiting sensitivity ± 6dB Audio output ± 30% max	test condition 4-1-1	
4-2. Humidity load teat					same as in item 4-1			test condition 4-2-1	
4-3. Cold test					same as in item 4-1			test condition 4-3-1	
4-4. Operating life test					same as in item 4-1			test condition 4-4-1	
4-5. High voltage test					same as in item 4-1			test condition 4-5-1	
4-6. Vibration test					same as in item 4-1			test condition 4-6-1	
4-7. Impact test					same as in item 4-1			test condition 4-7-1	
					A P P D.	C H K D.	D S G D.	MODEL NO: TADC-H207F	
								TITLE: SPECIFICATION	
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SYMB	NO	APPD	CHKD	DSGD				BC40310 (20/26)	

Environmental test condition									
Item					Test condition				
4-1-1 Heat load teat					1. Initial value measure at standard test condition. 2. Leave samples in 70℃± 2℃ for 96± 5 hours, and in standard test condition for 30 minutes, then take measurements within 1 hour. 3. Supply voltage : standard ± 10% 4. Supply voltage cycle : 1.5h on, 0.5h off				
4-2-1 Humidity load test					1. Leave samples in 40± 5℃ for 24± 2 hours, and in standard test condition for 30 minutes, then take measurements. 2. Leave samples in 40± 5℃ 90 ~ 95% rh, for 96± 5 hours, and in standard test condition for 30 minutes, then take measurements within 1 hour. 3. Supply voltage : standard +10% 4. Supply voltage cycle : 1.5h on, 0.5h off				
4-3-1 Cold test					1. Initial value measure at standard test condition. 2. Leave samples in -20℃± 2℃ for 96± 5 hours, and in standard test condition for 2 hours, then take measurements within 1 hour.				
4-4-1 Operating life test					1. Take measurements in standard test condition. 2. Leave samples for 1000 hours, then take measurements. 3. Supply voltage : standard				
4-5-1 High voltage test					15kV, 10 times (150pF charged) series R=150Ω				
4-6-1 Vibration test					Vibration test fixture in used to vibrate the tuner with a total amplitude of 1mm and frequency ranging from 10 to 55hz, once per minute consecutively, for 40 minutes in each of three directions, x,y and z.				
4-7-1 Impact test					1. Impact acceleration : 50m/sec ² 2. Impact time : 11msec 3. Impact time & direction : 3 times per each 6 sides				
5. Mechanical characteristics									
5-1 Outline view assembly appearance					No defects of wiring, soldering and assembling. No dirt, rust, corrosion or foreign material.				
					A P P D.	C H K D.	D S G D.	MODEL NO: TADC-H207F	
								TITLE: SPECIFICATION	
								DOCUMENT NO:	
SYMB	NO	APPD	CHKD	DSGD				BC40310 (21/26)	

Item					Test condition			
5-2 Appearance structure Dimension Mounting Weight 6. Others 6-1. Ant jack Load Test					As assembly drawing. As assembly drawing. Approximately 80± 5g. Crack, defection and shaking should not be existed with 15kg.cm banding moment after caulking. 			
					A P P D.	C H K D.	D S G D.	MODEL NO: TADC-H207F
								TITLE: SPECIFICATION
								DOCUMENT NO: BC40310 (22/26)
SYMB	NO	APPD	CHKD	DSGD				

7. TEST CIRCUIT



NOTE
TR1, TR2 : 2SC1213 or
EQUIVALENT

					A P P D.	C H K D.	D S G D.	MODEL NO: TADC-H207F
								TITLE: SPECIFICATION
								DOCUMENT NO: BC40310 (23/26)
SYMB	NO	APPD	CHKD	DSGD				

US 126/155/181 CH FREQUENCY LIST

CH	CENTER	P-Freq	S-Freq	OSC	BAND CODE
2	57.50	55.25	59.75	101	1 0 0 0
3	63.50	61.25	65.75	107	1 0 0 0
4	69.50	67.25	71.75	113	1 0 0 0
4A	75.50	73.25	77.75	119	1 0 0 0
5	79.50	77.25	81.75	123	1 0 0 0
6	85.50	83.25	87.75	129	1 0 0 0
A-5	93.50	91.25	95.75	137	1 0 0 0
A-4	99.50	97.25	101.75	143	1 0 0 0
A-3	105.50	103.25	107.75	149	1 0 0 0
A-2	111.50	109.25	113.75	155	1 0 0 0
A-1	117.50	115.25	119.75	161	1 0 0 0
A	123.50	121.25	125.75	167	1 0 0 0
B	129.50	127.25	131.75	173	1 0 0 0
C	135.50	133.25	137.75	179	0 1 0 0
D	141.50	139.25	143.75	185	0 1 0 0
E	147.50	145.25	149.75	191	0 1 0 0
F	153.50	151.25	155.75	197	0 1 0 0
G	159.50	157.25	161.75	203	0 1 0 0
H	165.50	163.25	167.75	209	0 1 0 0
I	171.50	169.25	173.75	215	0 1 0 0
7	177.50	175.25	179.75	221	0 1 0 0
8	183.50	181.25	185.75	227	0 1 0 0
9	189.50	187.25	191.75	233	0 1 0 0
10	195.50	193.25	197.75	239	0 1 0 0
11	201.50	199.25	203.75	245	0 1 0 0
12	207.50	205.25	209.75	251	0 1 0 0
13	213.50	211.25	215.75	257	0 1 0 0
J	219.50	217.25	221.75	263	0 1 0 0
K	225.50	223.25	227.75	269	0 1 0 0
L	231.50	229.25	233.75	275	0 1 0 0
M	237.50	235.25	239.75	281	0 1 0 0
N	243.50	241.25	245.75	287	0 1 0 0
O	249.50	247.25	251.75	293	0 1 0 0
P	255.50	253.25	257.75	299	0 1 0 0
Q	261.50	259.25	263.75	305	0 1 0 0

CH	CENTER	P-Freq	S-Freq	OSC	BAND CODE
R	267.50	265.25	269.75	311	0 1 0 0
S	273.50	271.25	275.75	317	0 1 0 0
T	279.50	277.25	281.75	323	0 1 0 0
U	285.50	283.25	287.75	329	0 1 0 0
V	291.50	289.25	293.75	335	0 1 0 0
W	297.50	295.25	299.75	341	0 1 0 0
W+1	303.50	301.25	305.75	347	0 1 0 0
W+2	309.50	307.25	311.75	353	0 1 0 0
W+3	315.50	313.25	317.75	359	0 1 0 0
W+4	321.50	319.25	323.75	365	0 1 0 0
W+5	327.50	325.25	329.75	371	0 1 0 0
W+6	333.50	331.25	335.75	377	0 1 0 0
W+7	339.50	337.25	341.75	383	0 1 0 0
W+8	345.50	343.25	347.75	389	0 1 0 0
W+9	351.50	349.25	353.75	395	0 1 0 0
W+10	357.50	355.25	359.75	401	0 1 0 0
W+11	363.50	361.25	365.75	407	0 1 0 0
W+12	369.50	367.25	371.75	413	0 0 0 1
W+13	375.50	373.25	377.75	419	0 0 0 1
W+14	381.50	379.25	383.75	425	0 0 0 1
W+15	387.50	385.25	389.75	431	0 0 0 1
W+16	393.50	391.25	395.75	437	0 0 0 1
W+17	399.50	397.25	401.75	443	0 0 0 1
W+18	405.50	403.25	407.75	449	0 0 0 1
W+19	411.50	409.25	413.75	455	0 0 0 1
W+20	417.50	415.25	419.75	461	0 0 0 1
W+21	423.50	421.25	425.75	467	0 0 0 1
W+22	429.50	427.25	431.75	473	0 0 0 1
W+23	435.50	433.25	437.75	479	0 0 0 1
W+24	441.50	439.25	443.75	485	0 0 0 1
W+25	447.50	445.25	449.75	491	0 0 0 1
W+26	453.50	451.25	455.75	497	0 0 0 1
W+27	459.50	457.25	461.75	503	0 0 0 1
W+28	465.50	463.25	467.75	509	0 0 0 1
W+29	471.50	469.25	473.75	515	0 0 0 1
----- END OF US 126 CH -----					

					A P P D.	C H K D.	D S G D.	MODEL NO: TADC-H207F
								TITLE: SPECIFICATION
								DOCUMENT NO:
SYMB	NO	APPD	CHKD	DSGD				BC40310 (24/26)

US 126/155/181 CH FREQUENCY LIST

CH	CENTER	P-Freq	S-Freq	OSC	BAND CODE
W+30	477.50	475.25	479.75	521	0 0 0 1
W+31	483.50	481.25	485.75	527	0 0 0 1
W+32	489.50	487.25	491.75	533	0 0 0 1
W+33	495.50	493.25	497.75	539	0 0 0 1
W+34	501.50	499.25	503.75	545	0 0 0 1
W+35	507.50	495.25	509.75	551	0 0 0 1
W+36	513.50	511.25	515.75	557	0 0 0 1
W+37	519.50	517.25	621.75	563	0 0 0 1
W+38	525.50	523.25	527.75	569	0 0 0 1
W+39	531.50	529.25	533.75	575	0 0 0 1
W+40	537.50	535.25	539.75	581	0 0 0 1
W+41	543.50	541.25	545.75	587	0 0 0 1
W+42	549.50	547.25	551.75	593	0 0 0 1
W+43	555.50	553.25	557.75	599	0 0 0 1
W+44	561.50	559.25	563.75	605	0 0 0 1
W+45	567.50	565.25	569.75	611	0 0 0 1
W+46	573.50	571.25	575.75	617	0 0 0 1
W+47	579.50	577.25	581.75	623	0 0 0 1
W+48	585.50	583.25	587.75	629	0 0 0 1
W+49	591.50	589.25	593.75	635	0 0 0 1
W+50	597.50	595.25	599.75	641	0 0 0 1
W+51	603.50	601.25	605.75	647	0 0 0 1
W+52	609.50	607.25	611.75	653	0 0 0 1
W+53	615.50	613.25	617.75	659	0 0 0 1
W+54	621.50	619.25	623.75	665	0 0 0 1
W+55	627.50	625.25	629.75	671	0 0 0 1
W+56	633.50	631.25	635.75	667	0 0 0 1
W+57	639.50	637.25	641.75	683	0 0 0 1
W+58	645.50	643.25	647.75	689	0 0 0 1
----- END OF US 155 CH -----					
W+59	651.50	649.25	653.75	695	0 0 0 1
W+60	657.50	655.25	659.75	701	0 0 0 1
W+61	663.50	661.25	665.75	707	0 0 0 1
W+62	669.50	667.25	671.75	713	0 0 0 1
W+63	675.50	673.25	677.75	719	0 0 0 1

CH	CENTER	P-Freq	S-Freq	OSC	BAND CODE
W+64	681.50	679.25	683.75	725	0 0 0 1
W+65	687.50	685.25	689.75	731	0 0 0 1
W+66	693.50	691.25	695.75	737	0 0 0 1
W+67	699.50	697.25	701.75	743	0 0 0 1
W+68	705.50	703.25	707.75	749	0 0 0 1
W+69	711.50	709.25	713.75	755	0 0 0 1
W+70	717.50	715.25	719.75	761	0 0 0 1
W+71	723.50	721.25	725.75	767	0 0 0 1
W+72	729.50	727.25	731.75	773	0 0 0 1
W+73	735.50	733.25	737.75	779	0 0 0 1
W+74	741.50	739.25	743.75	785	0 0 0 1
W+75	747.50	745.25	749.75	791	0 0 0 1
W+76	753.50	751.25	755.75	797	0 0 0 1
W+77	759.50	757.25	761.75	803	0 0 0 1
W+78	765.50	763.25	767.75	809	0 0 0 1
W+79	771.50	769.25	773.75	815	0 0 0 1
W+80	777.50	775.25	779.75	821	0 0 0 1
W+81	783.50	781.25	785.75	827	0 0 0 1
W+82	789.50	787.25	791.75	833	0 0 0 1
W+83	795.50	793.25	797.75	839	0 0 0 1
W+84	801.50	799.25	803.75	845	0 0 0 1
----- END OF US 181 CH -----					

					A P P D.	C H K D.	D S G D.	MODEL NO: TADC-H207F
								TITLE:
								SPECIFICATION
SYMB	NO	APPD	CHKD	DSGD				DOCUMENT NO: BC40310 (25/26)

US 126/155/181 CH FREQUENCY LIST

CH	CENTER	P-Freq	S-Freq	OSC	BAND CODE
14	473.50	471.25	475.75	517	0 0 0 1
15	479.50	477.25	481.75	523	0 0 0 1
16	485.50	483.25	487.75	529	0 0 0 1
17	491.50	489.25	493.75	535	0 0 0 1
18	497.50	495.25	499.75	541	0 0 0 1
19	503.50	501.25	505.75	547	0 0 0 1
20	509.50	507.25	511.75	553	0 0 0 1
21	515.50	513.25	517.75	559	0 0 0 1
22	521.50	519.25	523.75	565	0 0 0 1
23	527.50	525.25	529.75	571	0 0 0 1
24	533.50	531.25	535.75	577	0 0 0 1
25	539.50	537.25	541.75	583	0 0 0 1
26	545.50	543.25	547.75	589	0 0 0 1
27	551.50	549.25	553.75	595	0 0 0 1
28	557.50	555.25	559.75	601	0 0 0 1
29	563.50	561.25	565.75	607	0 0 0 1
30	569.50	567.25	571.75	613	0 0 0 1
31	575.50	573.25	577.75	619	0 0 0 1
32	581.50	579.25	583.75	625	0 0 0 1
33	587.50	585.25	589.75	631	0 0 0 1
34	593.50	591.25	595.75	637	0 0 0 1
35	599.50	597.25	601.75	643	0 0 0 1
36	605.50	503.25	607.75	649	0 0 0 1
37	611.50	509.25	613.75	655	0 0 0 1
38	617.50	515.25	619.75	661	0 0 0 1
39	623.50	621.25	625.75	667	0 0 0 1
40	629.50	627.25	631.75	673	0 0 0 1
41	635.50	633.25	637.75	679	0 0 0 1
42	641.50	639.25	643.75	685	0 0 0 1
43	647.50	645.25	649.75	691	0 0 0 1
44	653.50	651.25	655.75	697	0 0 0 1
45	659.50	657.25	661.75	703	0 0 0 1
46	665.50	663.25	667.75	709	0 0 0 1
47	671.50	669.25	673.75	715	0 0 0 1
48	677.50	675.25	679.75	721	0 0 0 1

CH	CENTER	P-Freq	S-Freq	OSC	BAND CODE
49	683.50	681.25	685.75	727	0 0 0 1
50	689.50	687.25	691.75	733	0 0 0 1
51	695.50	693.25	697.75	739	0 0 0 1
52	701.50	699.25	703.75	745	0 0 0 1
53	707.50	705.25	709.75	751	0 0 0 1
54	713.50	711.25	715.75	757	0 0 0 1
55	719.50	717.25	721.75	763	0 0 0 1
56	725.50	723.25	727.75	769	0 0 0 1
57	731.50	729.25	733.75	775	0 0 0 1
58	737.50	735.25	739.75	781	0 0 0 1
59	743.50	741.25	745.75	787	0 0 0 1
60	749.50	747.25	751.75	793	0 0 0 1
62	755.50	753.25	757.75	799	0 0 0 1
62	761.50	759.25	763.75	805	0 0 0 1
63	767.50	765.25	769.75	811	0 0 0 1
64	773.50	771.25	775.75	817	0 0 0 1
65	779.50	777.25	781.75	823	0 0 0 1
66	785.50	783.25	787.75	829	0 0 0 1
67	791.50	789.25	793.75	835	0 0 0 1
68	797.50	795.25	799.75	841	0 0 0 1
69	803.50	801.25	805.75	847	0 0 0 1

					A P P D.	C H K D.	D S G D.	MODEL NO: TADC-H207F
								TITLE:
								SPECIFICATION
								DOCUMENT NO:
SYMB	NO	APPD	CHKD	DSGD				BC40310 (26/26)

