

SPECIFICATION	
MODULATOR	
1. SCOPE	
THIS SPECIFICATION OUTLINES THE PERTINENT ELECTRICAL REQUIREMENTS OF THE RF OUTPUT MODULATOR WHICH CONVERTS THE FM VIDEO AND FM AUDIO SIGNAL INTO THE RF SIGNAL FOR TELEVISION STANDARD TRANSMISSION SYSTEM	
2. GENERAL SPECIFICATIONS	
2-1. OUTPUT FREQUENCY	2300.0~2500.0MHz(I ² C PLL CONTROLLER FROM OUTSIDE)
2-2.	
2-3. SUPPLY VOLTAGE	12V+/-0.2V
2-4. CONSUMPTION CURRENT	140+/-20mA
2-5. OPERATION AND STORAGE	TEMPERATURE 0-50° C
CONDITIONS FOR GUARANTEE	HUMIDITY 85% OR LESS
2-6.	
2-7.	
3. TEST CONDITIONS	
3-1. TESTING AMBIENT CONDITIONS	
DEFINED AS TEMPERATURE OF 25+/-2° C AND HUMIDITY OF 65+/-5% RH.	
NOTE : THAT TEMPERATURES OF 5-30° C AND HUMIDITY OF 45-85%RH	
MAY BE REGARDED AS STANDARD.	
3-2.	
3-3. UNIT SETTING CONDITIONS	
(1) PICTURE--	10 STEP WAVE SIGNAL 1.5Vp-p(82ΩLoad).
(2) AUDIO --	1.0Vp-p OF SINE WAVE 1KHZ.
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FM2400TSIM(1/4)	

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4. ELECTRICAL PERFORMANCE						
4-1. VIDEO SYSTEM CHARACTERISTICS						
	PARAMETER	SPECIFICATION			UNIT	REMARK
		MIN	TYP	MAX		
4-1-1	INPUT IMPEDANCE		1.3		K	MEASURE AT 0.5-5MHZ
4-1-2	INPUT SIGNAL LEVEL		1		V _{p-p}	LOAD OF 82Ω CONNECTED NEGATIVE SYNCHRONOUS
4-1-3	MODULATION FP 2460MHz (SINE WAVE 300KHz 1VP-P)	2	3	4	MHz	SUPERIMPOSED SINUOUS WAVE (3.58MHZ) IS 20% OF THE STEP INPUT
4-1-5	DIFFERENTIAL GAIN	-8		8	%	LEVEL. MEASURE UNDER THE APL OF 10-90% DIFFERENTIAL GAIN OF DEMULATOR UNIT IS TO BE COMPENSATED.
4-1-6	DIFFERENTIAL PHASE	-8		8	DEG	-DITTO-
4-1-7	S/N	45			dB	MEASURE MITH RESPECT TO STANDARD DEMODULA- TOR OUTPUT.
4-1-8	OUT LEVEL TAPER		4	6	dB	Fp 2300~2400MHz
4-2. AUDIO SYSTEM CHARACTERISTICS						
4-2-1	INPUT IMPEDANCE		1.4		KΩ	MEASURE AT 0.1-10KHZ
4-2-2	MODULATION	35	40	45	KHZ	
4-2-3	DISTORTION FACTOR			3	%	AUDIO INPUT SIGNAL: 1.0V _{p-p} 1KHZ MODULA- TION 50% (SINE WAVE) VIDEO INPUT SIGNAL: ALL BLACK (SYNC.ONLY) USE STANDARD DEMODU- LATOR OF INTER-CARRIER SYSTEM. DE-EMPHASIS(50 usec) IS ON.
4-2-4	S/N	40			dB	THE SAME AS 4-2-3
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4-3. OUTPUT SYSTEM CHARACTERISTICS						
	PARAMETER	SPECIFICATION			UNIT	REMARK
		MIN	TYP	MAX		
4-3-1	VIDEO CARRIER FREQUENCY	-50	fp	+50	KHZ	TEST AT 25°C TEMPERATURE AND 65%RH OF HUMIDITY. fp:2300~2500MHz fs1 6.0MHz fs2 6.5MHz *OUTPUT CHANNEL
4-3-2	VIDEO OUTPUT LEVEL	5	9	13	dBm	
4-3-3	AUDIO OUTPUT LEVEL DIFFERENCE(P/S RATIO)	22	27	32	dB	
4-3-4	AUDIO CARRIER FREQUENCY	-8	fs	+8	KHZ	INPUT SIGNAL : NONE THE MEASUREMENT IS TAKEN AFTER 30 sec. FROM THE POWER-ON.
4-3-5	AUDIO MODULATOR fs1 fs2	35	50	65	KHZ	MEASUREMENT DIFFERENCE VIDEO OF CARRIER
		35	50	65		
4-3-6	OUT-BAND SPURIOUS	50	55		dB	FREQUENCY OUTPUT LEVEL FOR 2.3~2.5GHz EXCEPT TO fp. fp+/-fs AGAINST VIDEO CARRIER OUTPUT LEVEL.
4-3-7	IN-BAND SPURIOUS WITHIN BANDWIDTH	60			dB	
4-3-8	OUTPUT IMPEDANCE		75		Ω	UNBALANCED.
5-1 PLL SECTION CHARACTERISTICS						
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SPECIFICATION											
BS TUNER											
NO.	ITEM	SPECIFICATION									NOTES
5-2.	IIC BUS (1) SDA,SCL INPUT VOLTAGE	UNDER STANDARD TEST CONDITION									V
		CONDITION	MIN.		TYP.		MAX.				
		HIGH VOLTAGE		3				5			
		LOW VOLTAGE		0				1.5			
	(2) ADDRESS	C2 (ON WRITE DATA FORMAT)									
(3) SDA SCL INPUT IMPEDANCE	SDA/SCL ARE IN THE HIGH IMPEDANCE AND THERE SHOULD BE NO RELIABILITY PROBLEM WITH 5V CONTINUALLY ON THE SDA/SCL, IF POWER SUPPLY IS SWITCHED OFF.										
(4) DATA FORMAT											
MSB ADDRESS11000MA1MA00ABYTE1 PROGRAMMABLE DIVIDER022222222ABYTE2 PROGRAMMABLE DIVIDER2765432102ABYTE3 CHARGE PUMP AND TEST BITS1CP(T1)T0111OS(0)ABYTE4 I/O PORT CONTROL BITSP7P6P5P4P3P2P1P0ABYTE5 LSB											
TABLE 1 WRITE DATA FORMAT (MSB IS TRANSMITTED FIRST)											
ADDRESS11000MA1MA01ABYTE1 STATUS BYTEPORFLI2I1I0A2A1A0ABYTE2											
TABLE 2 READ DATA FORMAT											
A:ACKNOWLEDGE BIT. MA1,MA0:VOLTAGE ADDRESS BITS. CP:CHARGE PUMP CURRENT SELECT. T1:TEST MODE SELECTION. T0:CHARGE PUMP DISABLE. OS:VARACTOR DRIVE OUTPUT DISABLE SWITCH. P7,P6,P5,P4,P3,P2,P1,P0:CONTROL OUTPUT STATES. POR:POWER ON RESET INDICATOR FL:PHASE LOCK DETECT FLAG. I2,I1,I0:DIGITAL INFORMATION FROM PORTS P7,P5 AND P4. A2,A1,A0:5 LEVEL ADC DATA FROM P6.											
Write data format AddressProgrammable dividerProgrammable dividerCharge pump and test bitsI/O port control bits STARTSTOP SDA SCL 12345678A12345678A12345678A12345678A12345678A Read data format AddressStatus byte STARTSTOP SDA SCL 12345678A12345678A											
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FM2400TSIM(4/4)											

