



EMC - Test Report

Model : LSM64**FCC ID BRFLT64BD****Product type** LCD COLOR TV + FM TRANSMITTER**Serial No.** -**Applicant** KEC CORP.**Address** KEC B/D. 257-7, Yangjae-Dong, Seocho-Ku, Seoul, Korea.**Manufacturer** KEC CORP.**Address** KEC B/D. 257-7, Yangjae-Dong, Seocho-Ku, Seoul, Korea.**Trade Name** KEC**TX Frequency Range** 88.3MHz ~ 95.0MHz**Test specification : FCC Part15 Subpart B Class B , Subpart C**
(Standard)**Test Result : In compliance**Tested by
(Test engineer)Reviewed by
(EMC Manager)

2001-01-27 Young Joon, Park

Date

Name

Signature

2001-01-27 James, Hong

Date

Name

Signature

Definition

: Applicable,



: Not Applicable,

N/A : Not Applicable,

: Not Applicable

The test result only responds to the tested sample.

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CERTITEK STANDARDS LABORATORY CO., LTD.



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1. EUT description

Introduction

LSM64 is a LCD COLOR TV + FM TRANSMITER. This LCD TV is designed for mobile use. Function to be able to listen to audio signal captured by TV set with car radio through FM antenna. FM Band is 88.3MHz to 95.0 MHz.

Identification

Receipt date : 2000-11-10

Model : LSM64

Manufacturer : KEC CORP.

Address : KEC B/D. 257-7, Yangjae-Dong, Seocho-Ku, Seoul, Korea.

Contact person : Eui-Yeun Kim (Senior Engineer)

Telephone : +82 - 54 - 467 - 3552

General Application

Item	Application
Chassis No.	KAC-507
VHF/UHF Tuner Type No.	VHF/UHF : TCPN9081DA10C
VHF/UHF Tuner Manufacturer	VHF/UHF : SAMSUNG
Display Screen	6.4 Inch (H 130.6mm × V 97.3mm)
Television System	NTSC-M
Receiving Channels	VHF : CH.2 ~ CH.13 / UHF : CH.14 ~ CH.69

Peripheral Device Ports

Port name	Description
EXTENTION (A/V1 INPUT)	AUDIO (L+R) , VIDEO , R/LINK , +12V
A/V2 INPUT	VIDEO / AUDIO (L+R)
A/V3 INPUT	VIDEO / AUDIO (L+R)
A/V OUT	VIDEO / AUDIO (L+R)
EXT. SPEAKER	Connect to Speaker or Headphone
DC 12V INPUT	Connect to Battery
ANT. INPUT	Connect to Antenna (75Ω)

Electrical rating

Input : DC 12V (CAR Battery)

Output : -

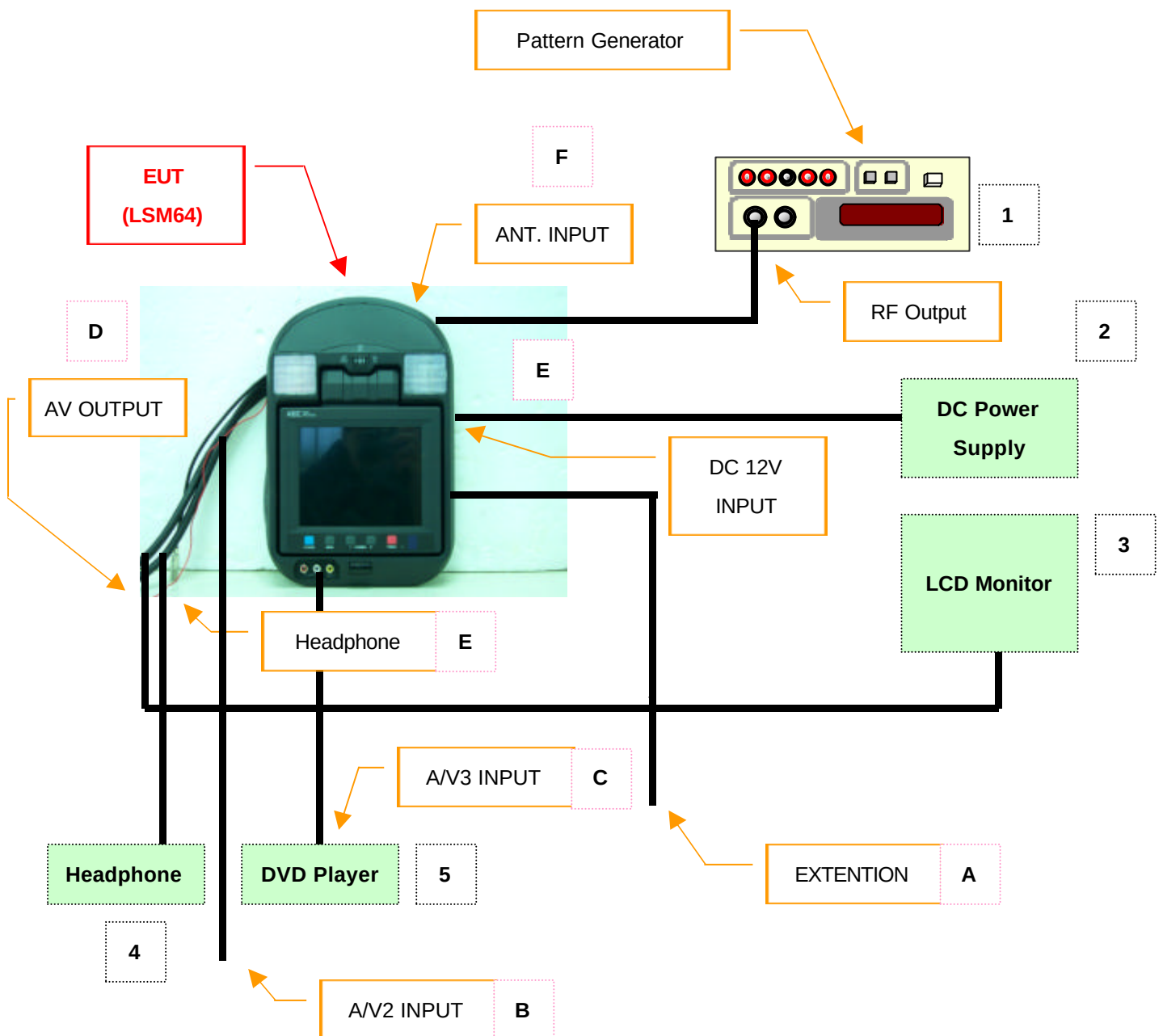


2. Test Set-up

Test Mode

Displayed "Color-Bar Pattern" was used during radiated testing.

Cable configuration



**Cable description**

Port name (start / end)		Type	Length (m)	Remark
A	EXTENTION (A/V1 INPUT)	-	5.0	Connected cable
B	A/V2 INPUT	RCA	2.0	Connected cable
C	A/V3 INPUT	RCA	2.0	Connected to DVD Player
D	A/V OUT	RCA	2.0	Connected to LCD Monitor
E	EXT. SPEAKER	Jack	2.0	Connected Headphone
F	DC 12V INPUT	-	2.0	Connected to DC Power Supply
G	ANT. INPUT	Coaxial	2.0	Connected to Pattern Generator

Auxiliary equipment

Description		Model name	Serial No.	Manufacturer	FCC ID or DoC Info
1	Pattern Generator	LCG-396	9020116	Leader	N/A
2	DC Power Supply	E3620A	-	HP	N/A
3	LCD Monitor	B17AF	-	HANSOL	DoC
4	Headphone	-	-	-	N/A
5	DVD Player	DVD-709	61KN400749	SAMSUNG	DoC

Test software

Software name	Manufacturer	Version	Description
-	-	-	-



Measurement Procedures

Preliminary AC power line conducted emissions tests were performed shielded room. To find worst mode, several typical mode and typical cable position were tested.

Final AC power line conducted emissions test was performed shielded room.(location is same as Preliminary test)

Based on the preliminary tests of the EUT, final test was proceeded worst case test mode and cable configuration.

Preliminary radiated emissions test were performed anechoic chamber (Distance of antenna and EUT was 3m). To find worst mode, several typical mode and typical cable position were tested and peak level and frequency were recorded.

Final radiated emissions test was performed Open Area Test Site. Based on the preliminary tests of the EUT, final test was proceeded worst case test mode and cable configuration.

* Measurement procedures was In accordance with ANSI C63.4-1992 7.2.3, 7.2.4 and 8.3.1.1, 8.3.1.2



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3. Test Result

Test summary

Test	Result	Remark
Emission test (EMI)		
Emissions from the intentional radiator #1 (200kHz Bandwidth)	Met	
Emissions from the intentional radiator #2 (Field Strength)	Met	
Emissions from the intentional radiator #3 (SPURIOUS)	Met	
Radiated emission	Met	
Conducted emission	Not applicable	
Peak picture sensitivity & Noise figure	Met	

Measurement uncertainty (k=2)

150kHz~30MHz: ± 2.68 , 30MHz~300MHz: +4.58, -4.66, 300MHz ~ 1GHz: +3.78, -3.74

Uncertainty parameter was calculated according to 'NAMAS Publication NIS 80'

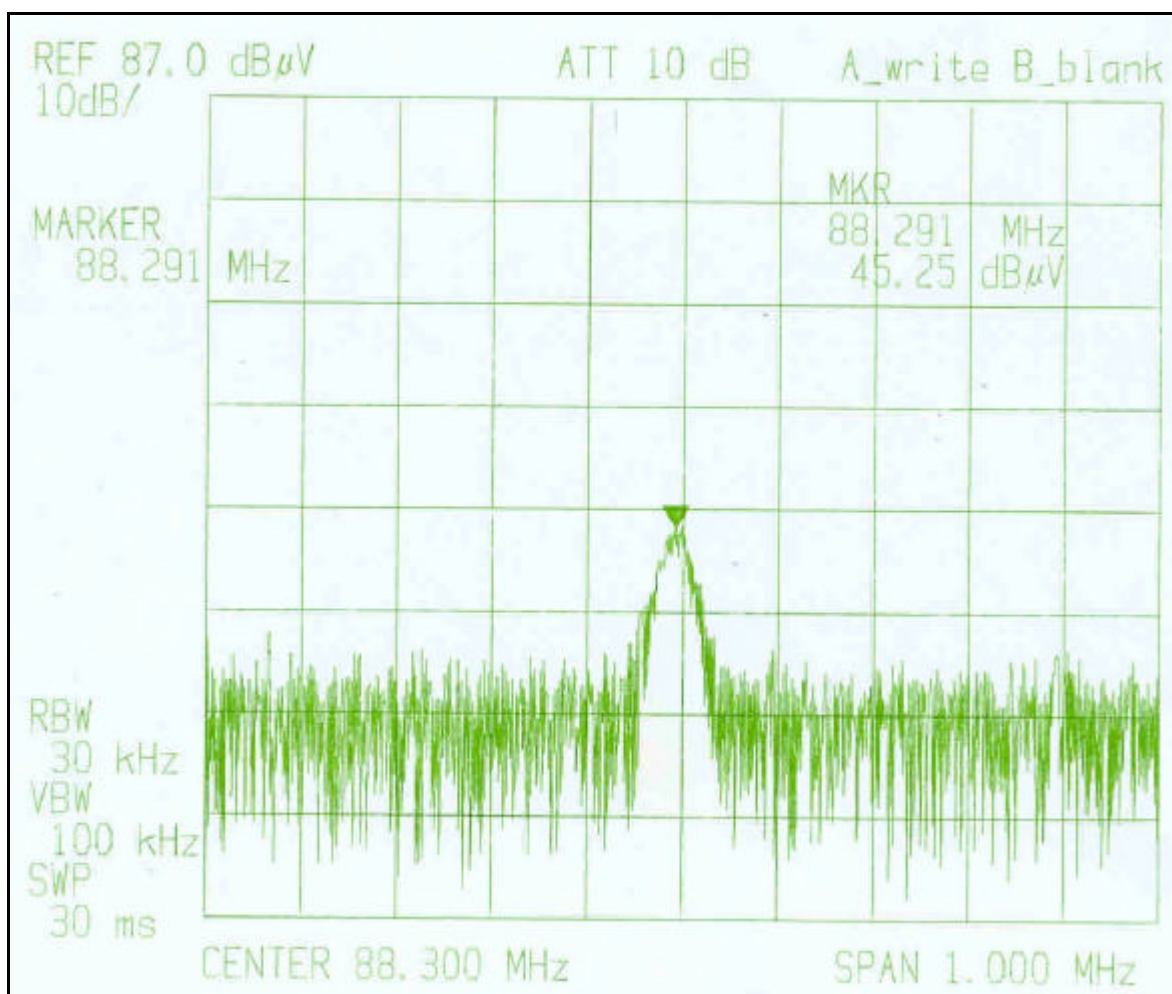
The tested LSM64 fully meets the Requirements of ANSI C63.4-1992, when operated as described in this report.

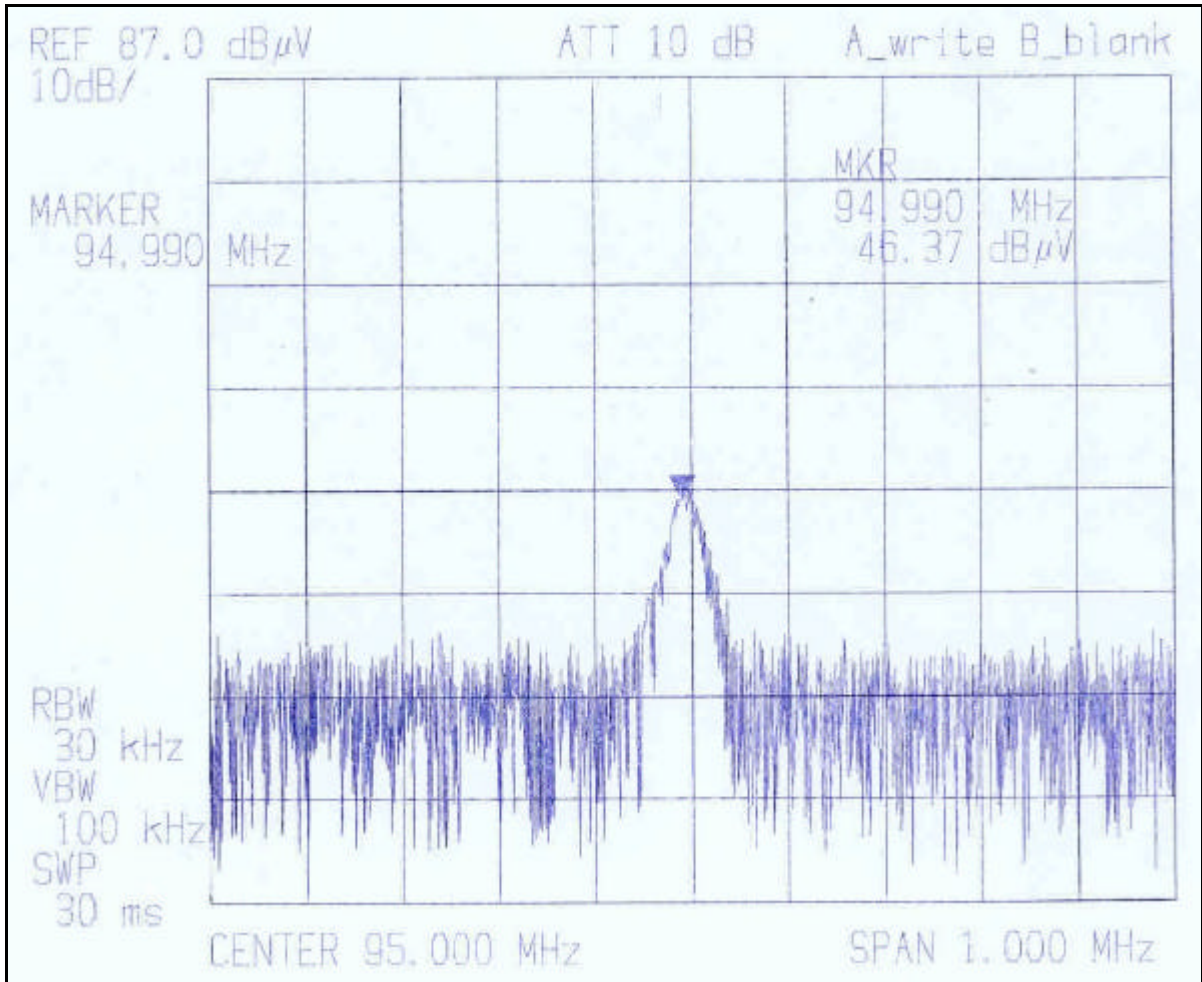
**Emissions from the intentional radiator #1**Test result: **Met**Reference Standard: **FCC Part15 Subpart C, Sec. 15.239 (a) 200kHz Bandwidth**

TX Frequency Range: 88.3MHz - 95.0MHz

Test and measurement equipment (Main equipment)

Model name	Manufacturer	Description	Serial No.
R3261D	ADVANTEST	Spectrum Analyzer	41720036





**Emissions from the intentional radiator #2**Test result: **Met**

Date of testing : 2000-12-05

Ambient temperature: 15°C, Relative humidity: 40%, Atmospheric pressure: 1010hPa(mbar)

Test site type: Open area test site

Reference Standard: **FCC Part15 Subpart C, Sec. 15.239 (b) Field Strength of Radiation**

Test and measurement equipment (Main equipment)

Model name	Manufacturer	Description	Serial No.
3146	EMCO	Biconical antenna	9607-4567
3110B	EMCO	Log-periodic antenna	9607-2564
ESVS30	Rohde Schwarz	Field strength meter	826638/008
-	-	-	-

TX Frequency Range 88.3MHz - 95.0MHz

Instrument settings IF Band Width : 120KHz

Antenna distance 3m (From the EUT)

Test data sheet (Quasi-Peak reading)

Frequency [MHz]	Reading [dBuV/m]	Pol.	Height [m]	Correction Factor		Limits [dBuV/m]	Result [dBuV/m]	Margin [dB]
				Antenna	Cable			
88.30	36.5	H	2.1	9.48	1.00	48.0	46.98	1.02
95.00	36.1	H	2.0	9.90	0.90	48.0	46.90	1.10

Comment : 88.3MHz – Low Frequency, 95.0MHz – High Frequency

**Emissions from the intentional radiator #3**Test result: **Met**

Date of testing : 2001-01-17

Ambient temperature: 5°C, Relative humidity: 30%, Atmospheric pressure: 1000hPa(mbar)

Test site type: Open area test site

Reference Standard: **FCC Part15 Subpart C, Sec. 15.209 (c) Field Strength of SPURIOUS Radiation**

Test and measurement equipment (Main equipment)

Model name	Manufacturer	Description	Serial No.
3146	EMCO	Biconical antenna	9607-4567
3110B	EMCO	Log-periodic antenna	9607-2564
ESVS30	Rohde Schwarz	Field strength meter	826638/008
-	-	-	-

TX Frequency Range 88.3MHz - 95.0MHz

Instrument settings IF Band Width : 120KHz

Antenna distance 3m (From the EUT)

Test data sheet (Quasi-Peak reading)

Frequency [MHz]	Reading [dBuV/m]	Pol.	Height [m]	Correction Factor		Limits [dBuV/m]	Result [dBuV/m]	Margin [dB]
				Antenna	Cable			
176.60	8.9	H	2.1	13.20	1.60	43.5	23.70	19.80
190.00	7.6	H	2.1	14.00	1.70	43.5	23.30	20.20
264.90	0.8	H	2.1	19.10	2.20	46.0	22.10	23.90
285.00	0.9	H	2.0	19.95	2.30	46.0	23.15	22.85

Comment : 88.3MHz – Low Frequency, 95.0MHz – High Frequency



Radiated emission

Test result: **Met**

Date of testing : 2000-12-05

Ambient temperature: 15°C, Relative humidity: 40%, Atmospheric pressure: 1010hPa(mbar)

Test site type: Open area test site

Reference Standard: FCC Part15 Subpart B , Class B

Test and measurement equipment (Main equipment)

Model name	Manufacturer	Description	Serial No.
3146	EMCO	Biconical antenna	9607-4567
3110B	EMCO	Log-periodic antenna	9607-2564
ESVS30	Rohde Schwarz	Field strength meter	826638/008
-	-	-	-

Frequency Band 30MHz - 1000MHz

Antenna distance 3m (From the EUT)

Test data sheet

Frequency [MHz]	Reading [dBuV/m]	Pol.	Height [m]	Correction Factor		Limits [dBuV/m]	Result [dBuV/m]	Margin [dB]
				Antenna	Cable			
67.85	19.9	H	4.0	8.78	0.80	40.0	29.48	10.52
102.21	21.2	V	1.6	10.35	1.00	43.5	32.55	10.95
115.12	18.5	V	1.0	11.05	1.10	43.5	30.65	12.85
122.50	18.0	V	1.3	11.43	1.10	43.5	30.53	12.97
127.22	15.0	H	2.0	11.68	1.30	43.5	27.98	15.52
131.99	14.7	V	1.4	11.90	1.30	43.5	27.90	15.60
171.10	15.2	V	1.6	12.90	1.60	43.5	29.70	13.80
180.55	13.0	V	2.0	13.30	1.60	43.5	27.90	15.60
190.00	11.2	H	2.1	14.00	1.70	43.5	26.90	16.60
278.40	9.8	H	1.3	19.50	2.30	46.0	31.60	14.40
283.10	9.9	H	1.1	19.78	2.30	46.0	31.98	14.02
292.65	8.2	V	1.0	20.48	2.40	46.0	31.08	14.92

Comment : -

**Conducted emission**Test result: **Not applicable**

Date of testing : -

Ambient temperature: -°C, Relative humidity: -%, Atmospheric pressure: -hPa(mbar)

Test site type: Shielded room

Reference Standard: FCC Part15 Subpart B , Class B

Test and measurement equipment (Main equipment)

Model name	Manufacturer	Description	Serial No.
3825/2	EMCO	LISN	9206-1971
ESHS30	Rohde Schwarz	Field strength meter	828144/002
-	-	-	-

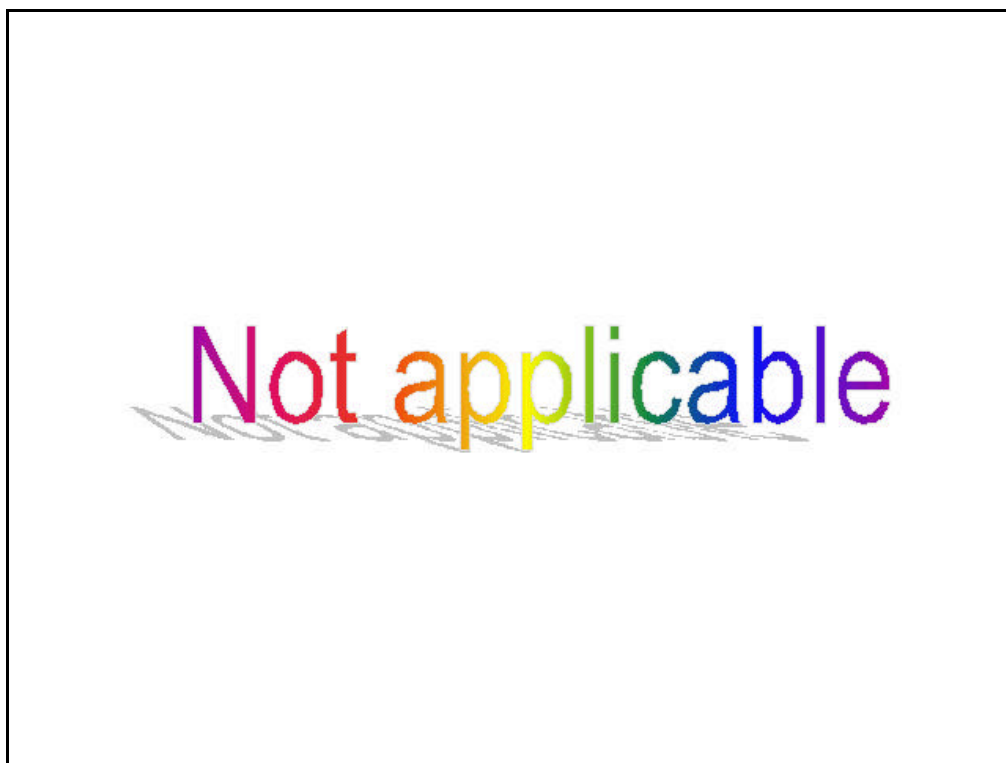
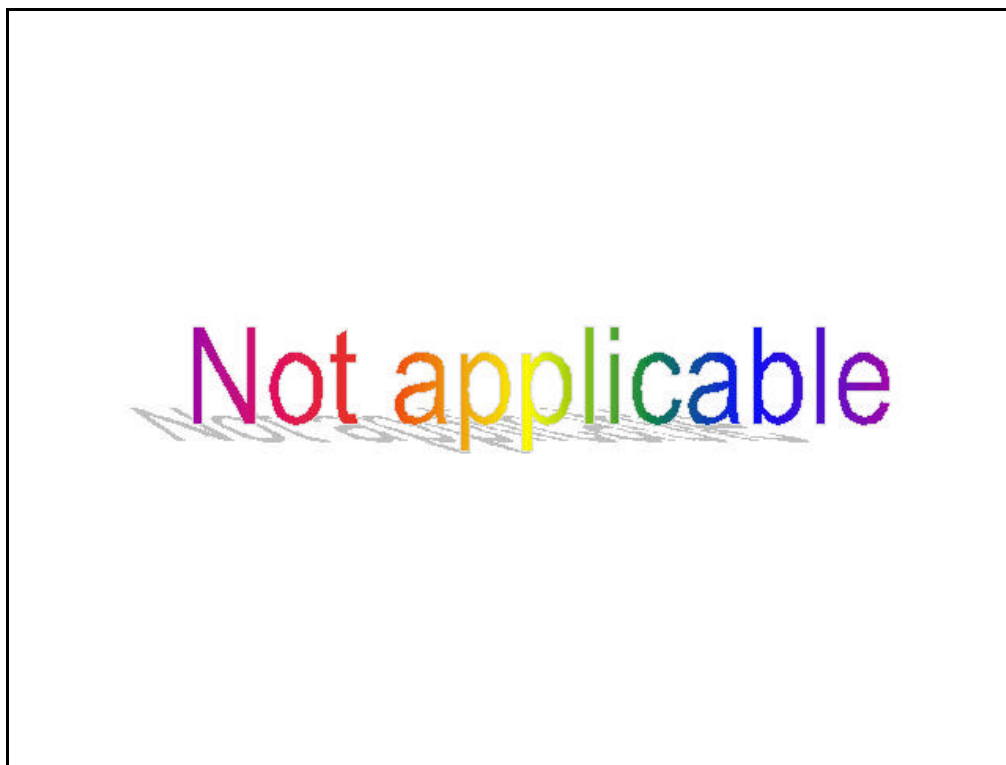
Test data sheet

Frequency [MHz]	Correction Factor		Line	Quasi-peak				Average			
	LISN	Cable		Limit [dBuV]	Reading [dBuV]	Result [dBuV]	Margin [dB]	Limit [dBuV]	Reading [dBuV]	Result [dBuV]	Margin [dB]

Comment : -



Test data graphic





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Peak picture sensitivity & Noise figure

Test result: **Met**

Test area: **SAMSUNG**

Reference Test Procedure: **IEEE 190, TB-3, 1982**

Reference Standard: **FCC Part15 Subpart B**

Peak picture sensitivity

VHF CH.	dBuV	UHF CH.	dBuV
CH2	38	CH20	34
CH4	36	CH30	34
CH6	35	CH40	34
CH7	35	CH50	34
CH10	35	CH69	35
CH13	35	N/A	
Average	35.6	Average	34.2

UHF – VHF	1.4 dBuV
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Noise Figure

UHF CH.	dB
CH14	4.5
CH20	4.5
CH30	4.5
CH40	4.5
CH50	4.5
CH60	5.8
CH69	6.2
MAXIMUM	
CH.	dB
CH69	6.2