THRU Lab & Engineering.

477-6, Hager-Ri, Yoju-Up, Yoju-Gun
Kyunggi-Do,469-803, Korea
T820318835092F820318835169 email thrukang@kornet.net

Test Report

Product Name: Paging repeater

FCC ID: QBTLTK-1900R

Applicant:

LEE TECHNOLOGY KOREA CO.,LTD.

3rd FL #499-2, Sang 3-dong, Wonmi-gu,
Bucheon-city, Kyungki-do,
KOREA

Date Receipt:10/28/2008

Date Tested: 11/05/2008

THRU Lab & Engineering.

477-6, Hager-Ri, Yoju-Up, Yoju-Gun
Kyunggi-Do,469-803, Korea
T820318835092F820318835169 email thrukang@kornet.net

TABLE OF CONTENTS LIST

APPLICANT: LEE TECHNOLOGY KOREA CO.,LTD.

FCC ID: QBTLTK-1900R

TEST REPORT CONTAINING:

EXHIBITS CONTAINING:

THRU Lab & Engineering.

477-6, Hager-Ri, Yoju-Up, Yoju-Gun
Kyunggi-Do,469-803, Korea
T820318835092F820318835169 email thrukang@kornet.net

GENERAL INFORMATION REQUIRED FOR TYPE ACCEPTANCE

2.1033 (c)(1)(2) LEE TECHNOLOGY KOREA CO.,LTD.. will sell the FCC ID: QBTLTK-1900R UHF transceiver in quantity, for use under FCC RULES PART 90 .

2.1033 (c)(3) TECHNICAL DESCRIPTION
User Manual See Exhibit 6

2.1033 (c)(4) Type of Emission: 10K2F1D
FOR 25kHz

Bn = 2M + 2DK
M = 1,200 Bits per second
D = 4.5 kHz (Peak Deviation)
K = 1
Bn = 2(1,200bps/2) + 2(4500)(1) = 10.2k

ALLOWED AUTHORIZED BANDWIDTH = 10.2 kHz.
90.209(b) (5)

2.1033(c)(5) Frequency Range: 450 - 454, 456 - 460, 467.7375 - 470 MHz

2.1033(c)(6) Power Range and Controls: There are NO user Power controls.

2.1033(c)(7) Maximum Output Power Rating:
see Next Page.

2.1033(c)(8) DC Voltages and Current into Final Amplifier:

POWER INPUT
FIANL AMPLIFIER ONLY
Vce = 12 Volts
IC = 350 mA

2.1033(c)(9) Tune-up procedure. The tune-up procedure is given in EXHIBIT 9.

2.1033(c)(10) Complete Circuit Diagrams: The circuit diagram is included as EXHIBIT 2. The block diagram is included as EXHIBIT 3.

Description of all circuitry and devices provided for determining and stabilizing frequency is included in the circuit description in Exhibit 7.

2.1033(c)(11) A photograph or drawing of the equipment identification label is shown in Exhibit 1.

THRU Lab & Engineering.
477-6, Hager-Ri, Yoju-Up, Yoju-Gun
Kyunggi-Do,469-803, Korea
T820318835092F820318835169 email thrukang@kornet.net

2.1033(c)(12) Photographs of the equipment of sufficient clarity to reveal equipment construction and layout and label location are shown in Exhibit 4-5.

2.1033(c)(13) For equipment employing digital modulation, a detail description of the modulation technique. This UUT uses FSK to modulate the transmitter.

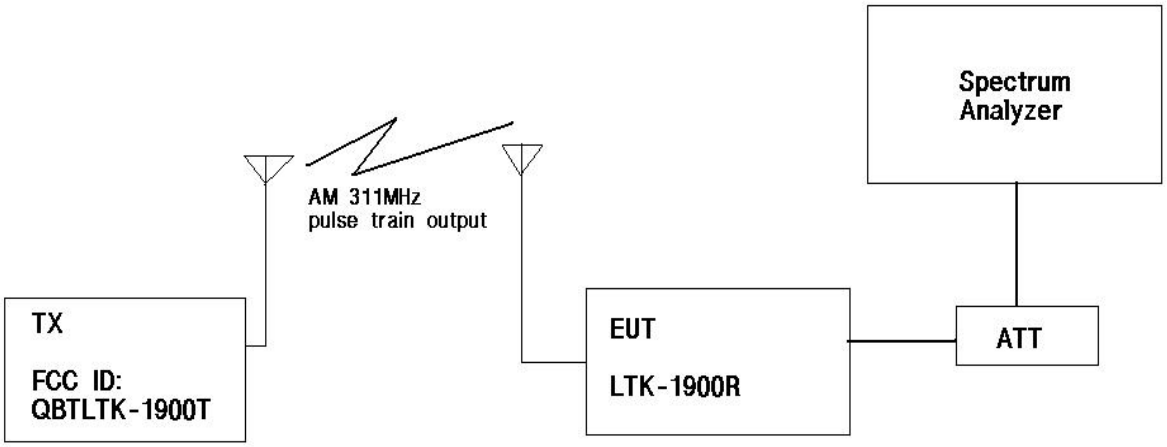
2.1033(c)(14) Data required for 2.1046 to 2.1057 See Below

2.1046(a) & 90.205 RF power output.

MAXIMUM PEAK OUTPUT POWER(CONDUCTED)

Maximum peak output power(W)		
LOW	Mid	HIGH
0.51W	0.63W	0.58W
27.10 dBm	28.0 dBm	27.60 dBm

- OUTPUT POWER Test Setup Block Diagram



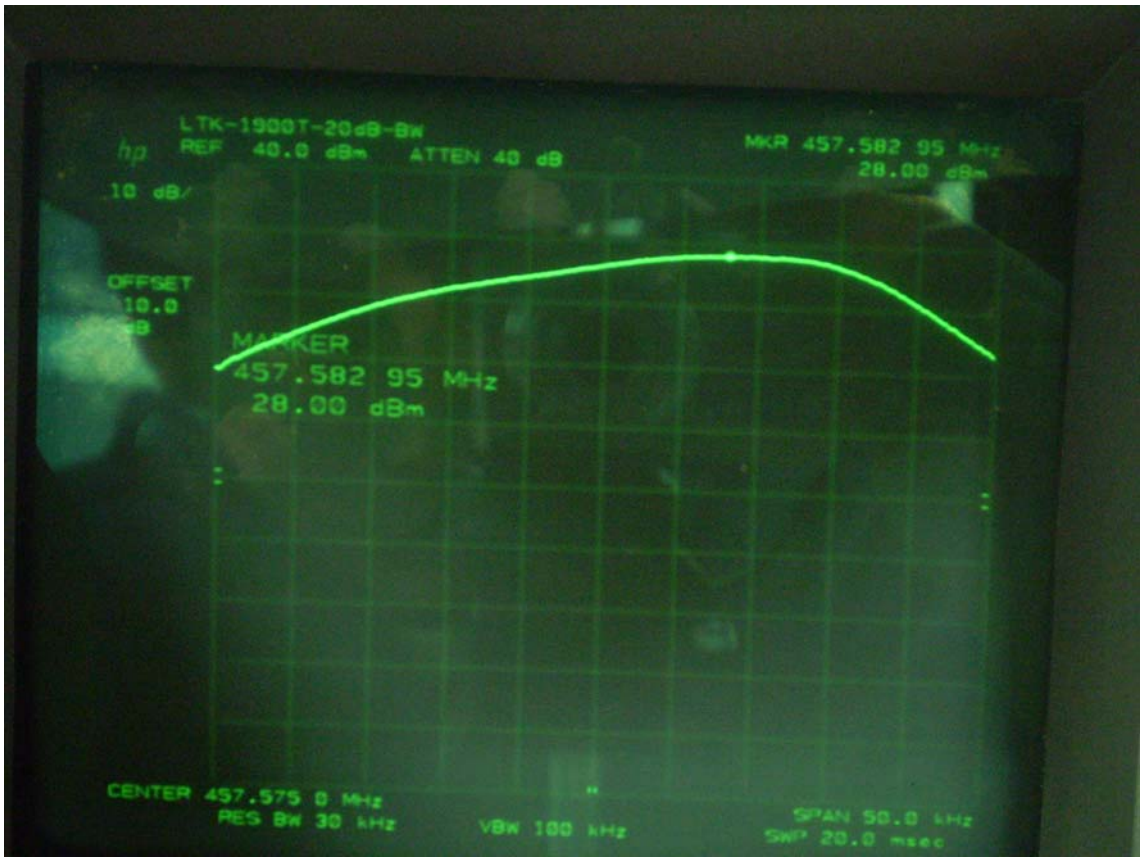
THRU Lab & Engineering.
477-6, Hager-Ri, Yoju-Up, Yoju-Gun
Kyunggi-Do,469-803, Korea
T820318835092F820318835169 email thrukang@kornet.net

PLOT

LOW

THRU Lab & Engineering.
477-6, Hager-Ri, Yoju-Up, Yoju-Gun
Kyunggi-Do,469-803, Korea
T820318835092F820318835169 email thrukang@kornet.net

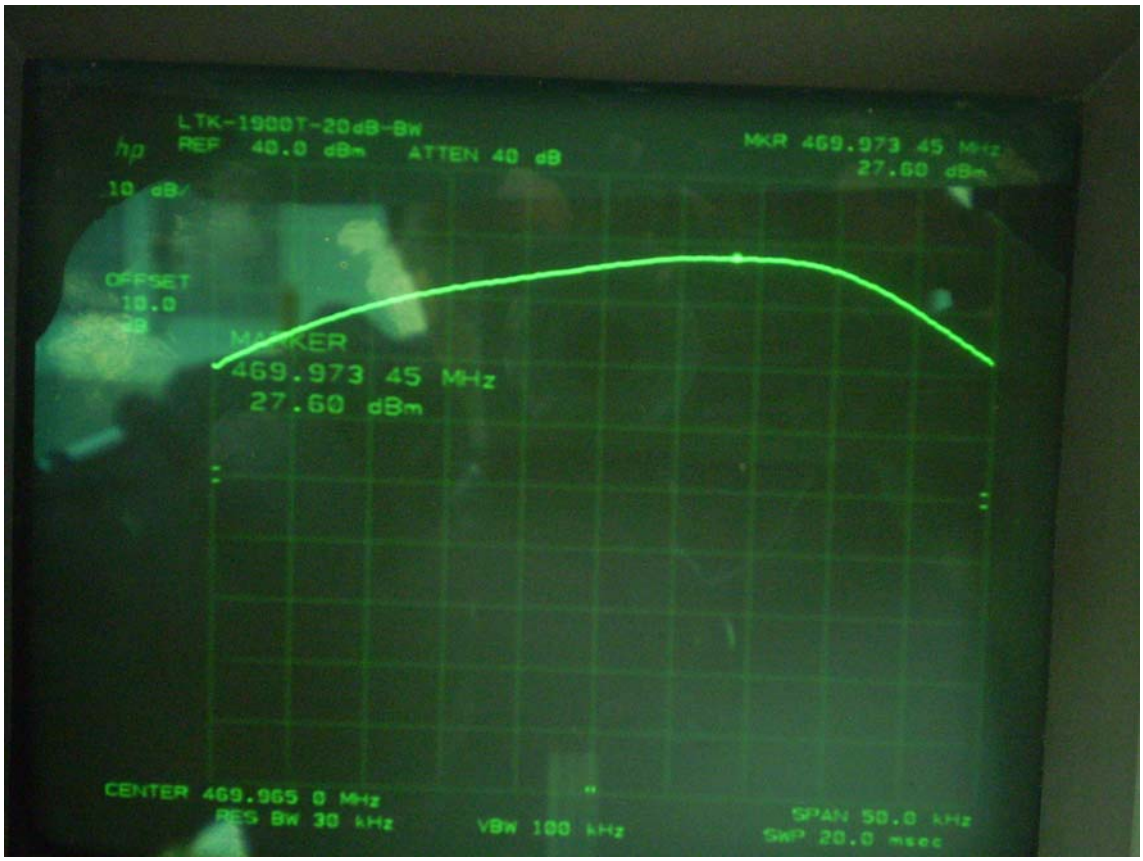
Mid



THRU Lab & Engineering.

477-6, Hager-Ri, Yoju-Up, Yoju-Gun
Kyunggi-Do,469-803, Korea
T820318835092F820318835169 email thrukang@kornet.net

High



THRU Lab & Engineering.

477-6, Hager-Ri, Yoju-Up, Yoju-Gun
Kyunggi-Do,469-803, Korea
T820318835092F820318835169 email thrukang@kornet.net

SPURIOUS EMISSIONS (Conducted)

2.1057 SPECTRUM RANGE TO BE INVESTIGATED

Lowest radio frequency signal generated in the equipment, without going below 9kHz, up to at least the frequency shown below:

(1)If the equipment operates below 10 GHz: to the tenth harmonic of the highest fundamental frequency or to 40GHz, whichever is lower.

(2)If the equipment operates at or above 10GHz and below 30GHz:

to the fifth harmonic of the highest fundamental frequency or to 100GHz, whichever is lower.

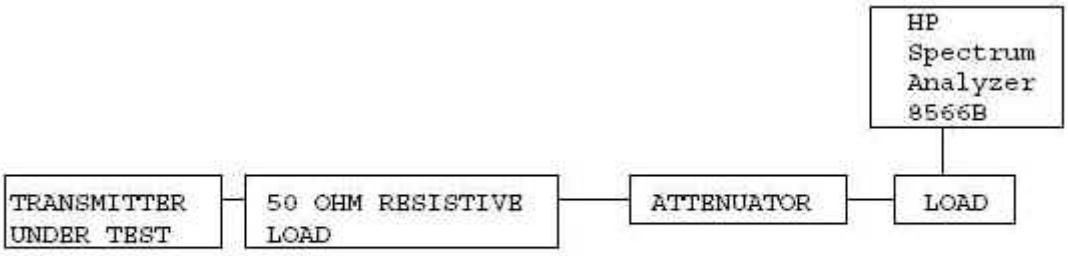
(3)If the equipment operates at or above 30GHz: to the fifth harmonic of the highest fundamental frequency or to 200GHz, whichever is lower.

(b) Particular attention should be paid to harmonics and sub-harmonics of the carrier frequency as well as to those frequencies removed from the carrier by multiples of the oscillator frequency. Radiation at the frequencies of multiplier stages should also be checked.

(c) The amplitude of spurious emissions, which are attenuated more than 20dB below the permissible value, need not be reported.

(d) Unless otherwise specified,measurements above 40GHz shall be performed using a minimum resolution bandwidth of 1MHz.

Method of Measuring Conducted Sprious Emissions



THRU Lab & Engineering.
477-6, Hager-Ri, Yoju-Up, Yoju-Gun
Kyunggi-Do,469-803, Korea
T820318835092F820318835169 email thrukang@kornet.net

PLOT

REQUIREMENTS : 43 + 10log(0.51) = 40.0 dB

Low

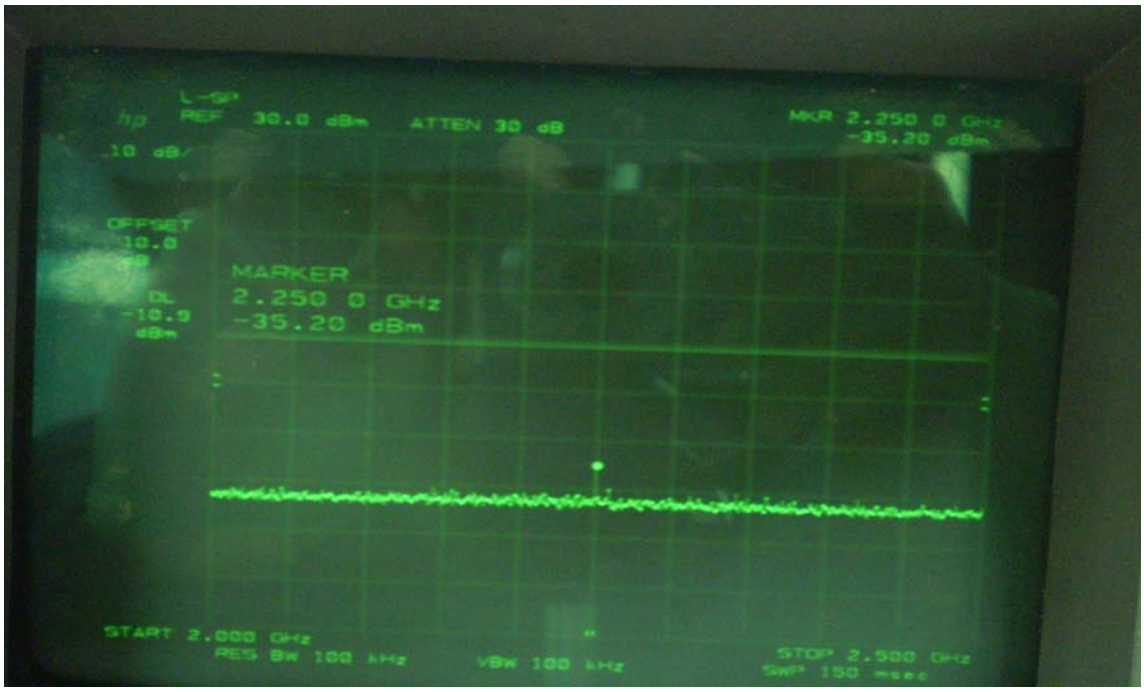
<30M – 470M>

<470M – 2G>

APPLICANT: LEE TECHNOLOGY KOREA CO.,LTD.
FCC ID: QBTLTK-1900R
REPORT #: TK-FR002

THRU Lab & Engineering.

477-6, Hager-Ri, Yoju-Up, Yoju-Gun
Kyunggi-Do,469-803, Korea
T820318835092F820318835169 email thrukang@kornet.net

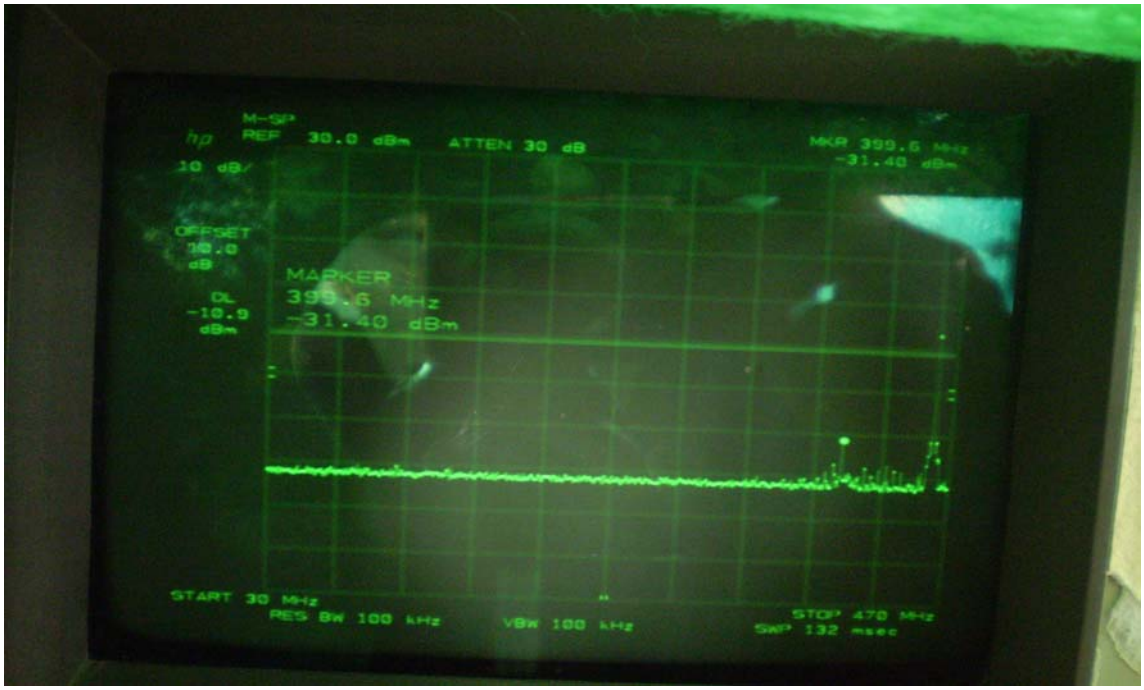


<2.0G – 2.5G>

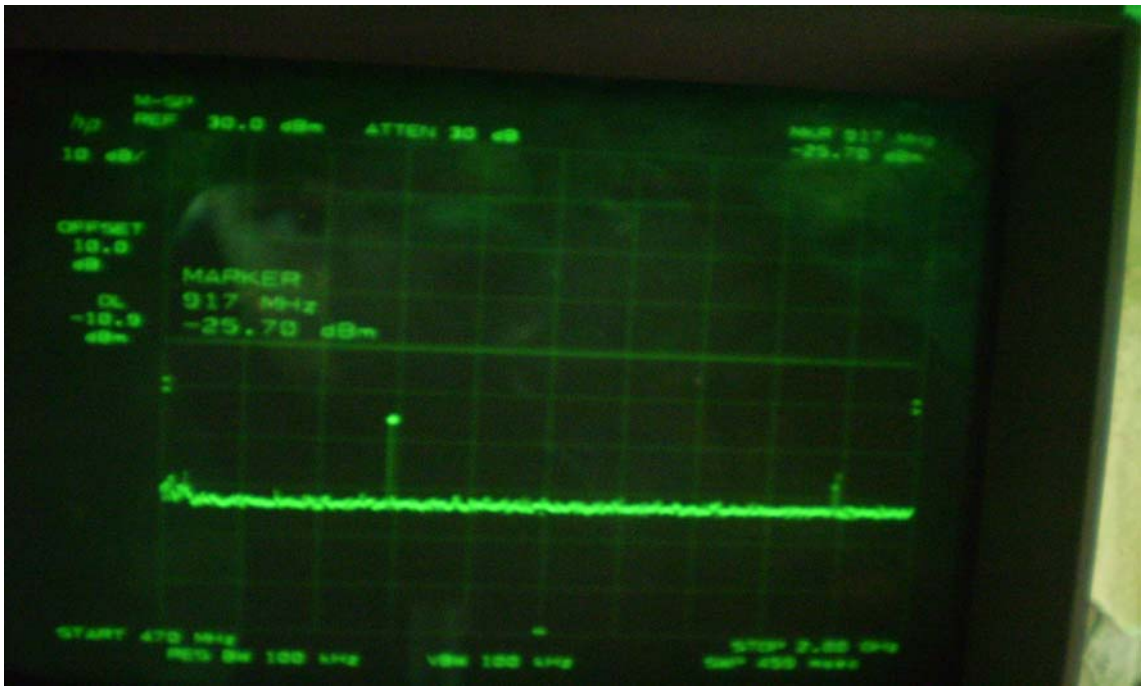
<2.5G – 4.7>

THRU Lab & Engineering.
477-6, Hager-Ri, Yoju-Up, Yoju-Gun
Kyunggi-Do,469-803, Korea
T820318835092F820318835169 email thrukang@kornet.net
Mid

REQUIREMENTS : 43 + 10log(0.63) = 40.9 dB



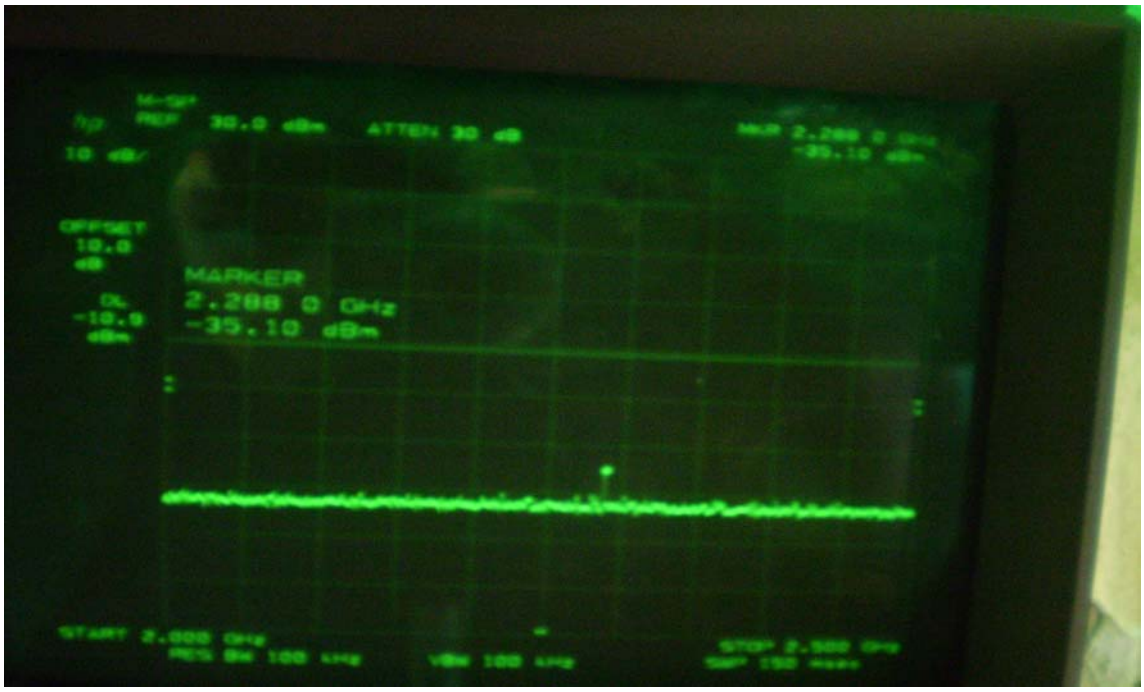
<30M – 470M>



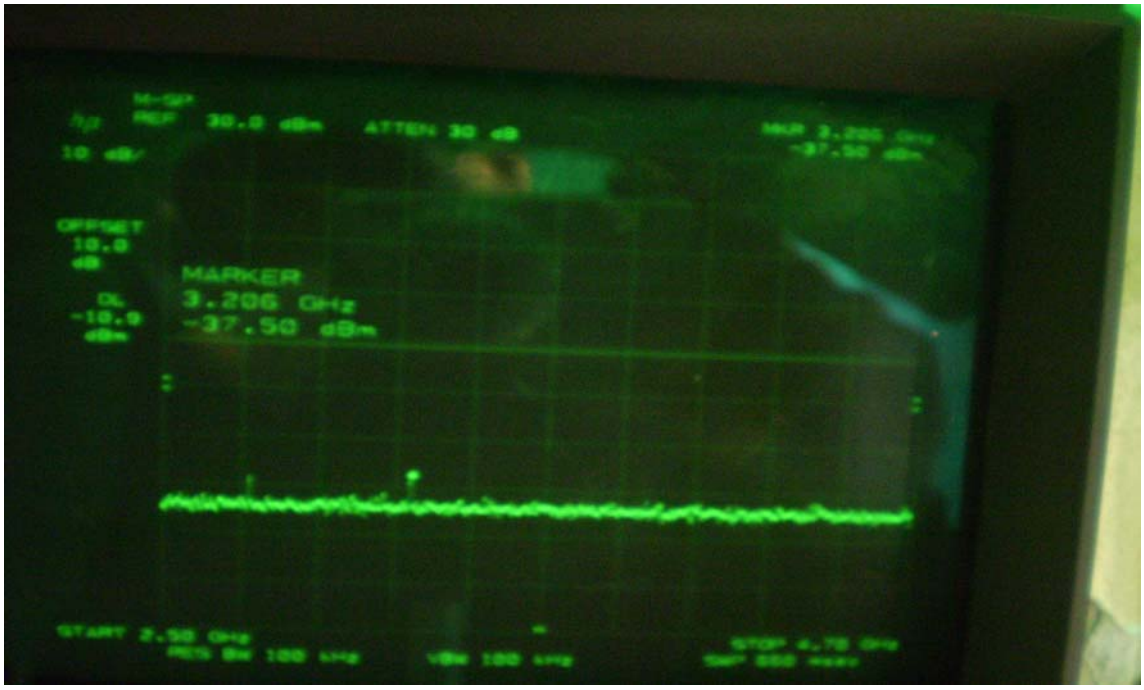
<470M – 2.5G>

THRU Lab & Engineering.

477-6, Hager-Ri, Yoju-Up, Yoju-Gun
Kyunggi-Do,469-803, Korea
T820318835092F820318835169 email thrukang@kornet.net



<2.0G – 2.5G>

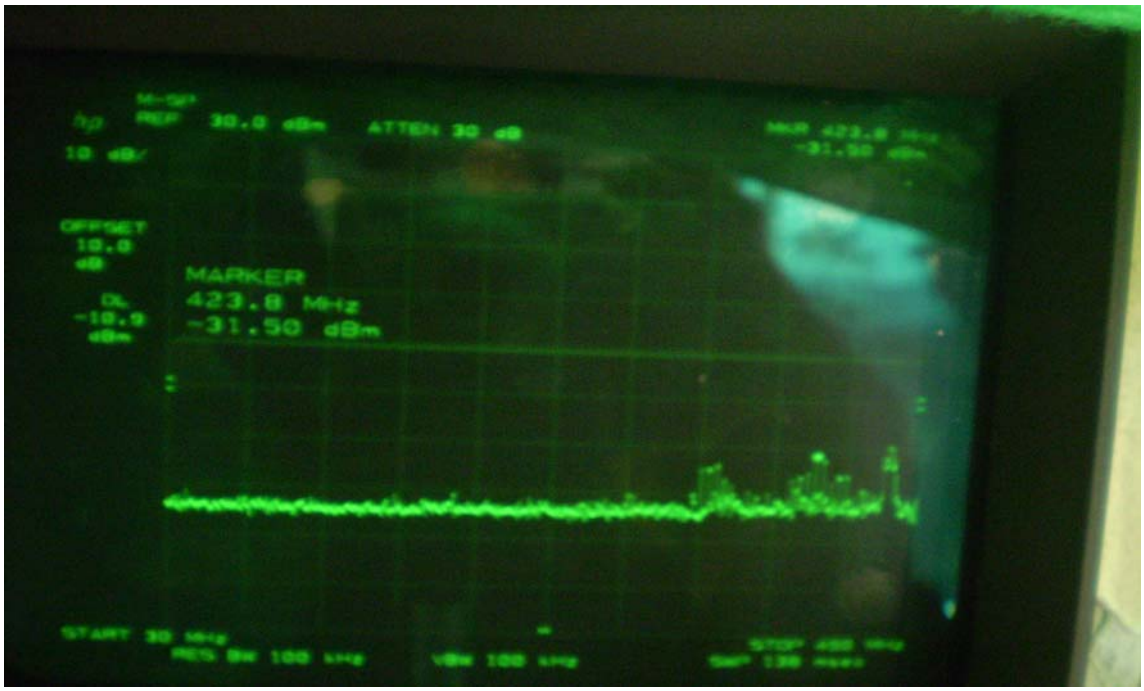


<2.5G – 4.7G>

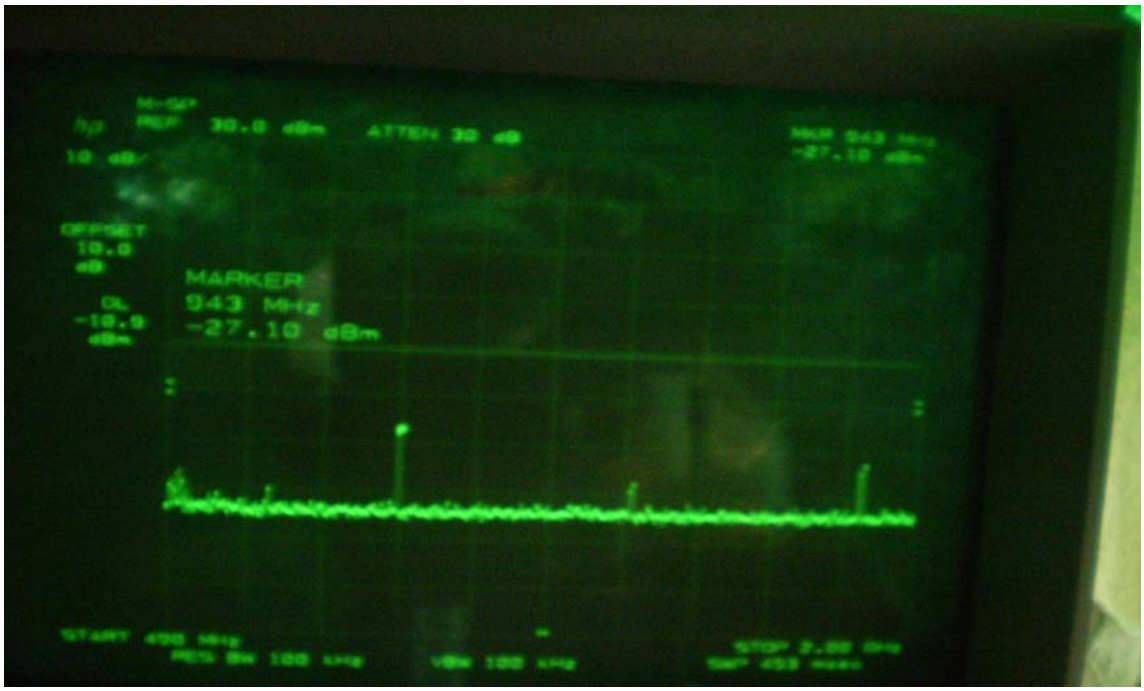
THRU Lab & Engineering.
477-6, Hager-Ri, Yoju-Up, Yoju-Gun
Kyunggi-Do,469-803, Korea
T820318835092F820318835169 email thrukang@kornet.net

HIGH

REQUIREMENTS : 43 + 10log(0.58) = 40.6 dB



<30M – 470M>

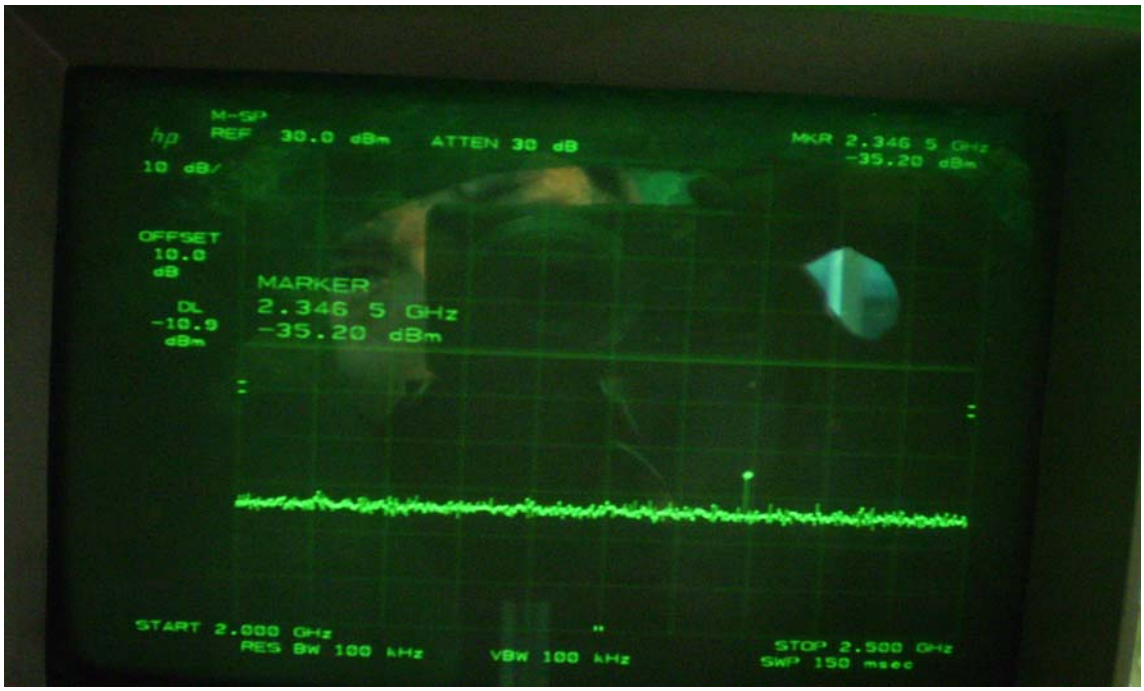


<490M – 2G>

APPLICANT: LEE TECHNOLOGY KOREA CO.,LTD.
FCC ID: QBTLTK-1900R
REPORT #: TK-FR002

THRU Lab & Engineering.

477-6, Hager-Ri, Yoju-Up, Yoju-Gun
Kyunggi-Do,469-803, Korea
T820318835092F820318835169 email thrukang@kornet.net



<2.0G – 2.5G>

<2.5G – 4.9G>

THRU Lab & Engineering.

477-6, Hager-Ri, Yoju-Up, Yoju-Gun
Kyunggi-Do,469-803, Korea
T820318835092F820318835169 email thrukang@kornet.net

2.1053 **UNWANTED RADIATION**

90.210 (g) (3) The tabulated Data shows the results of the radiated Field strength emissions test. The spectrum was Scanned from 30 MHz to at least the 10^{th} harmonic of the fundamental.

REQUIREMENTS : 43 + 10log(0.51) = 40.0 dB

Test result : Low

	Horizontal				**Vertical**		
frequency	**dBc**	**Margin**	**dBm**	**frequency**	**dBc**	**Margin**	**dBm**
450.0250				450.0250			
900.0500	45.28	5.18	-18.18	900.0500	42.18	2.08	-15.08
1350.0750	48.49	8.39	-21.39	1350.0750	44.89	4.79	-17.79
1800.1000	47.80	7.70	-20.70	1800.1000	47.60	7.50	-20.50
2250.1250	48.04	7.94	-20.94	2250.1250	44.74	4.64	-17.64
2700.1500	46.87	6.77	-19.77	2700.1500	41.87	1.77	-14.77
3150.1750	42.36	2.26	-15.26	3150.1750	41.46	1.36	-14.36
3600.2000	42.94	2.84	-15.84	3600.2000	42.74	2.64	-15.64
4050.2250	43.64	3.54	-16.54	4050.2250	42.94	2.84	-15.84
4500.2500	41.08	0.98	-13.98	4500.2500	41.78	1.68	-14.68

METHOD OF MEASUREMENT : The tabulated data shows the results of the radiated field strength emissions test. The spectrum was scanned from 30 MHz to at least the tenth harmonic of the fundamental. This test was conducted per TIA/EIA STANDARD 603 using the substitution method. Measurements were made at the open field test site of ThruLab & ENGINEERING. located at 477-6, Hager-Ri, Yoju-Up, Yoju-Gun, Kyunggi-Do,469-803, Korea

THRU Lab & Engineering.

477-6, Hager-Ri, Yoju-Up, Yoju-Gun
Kyunggi-Do,469-803, Korea
T820318835092F820318835169 email thrukang@kornet.net

2.1053 **UNWANTED RADIATION**

90.210 (g) (3) The tabulated Data shows the results of the radiated Field strength emissions test. The spectrum was Scanned from 30 MHz to at least the 10th harmonic of The fundamental.

REQUIREMENTS : 43 + 10log(0.63) = 40.9 dB

Test result : Mid

Horizontal				Vertical			
frequency	**dBc**	**Margin**	**dBm**	**frequency**	**dBc**	**Margin**	**dBm**
457.5750				457.5750			
915.1500	47.37	6.37	-19.37	915.1500	44.07	3.07	-16.07
1372.7250	50.68	9.68	-22.68	1372.7250	44.38	3.38	-16.38
1830.3000	51.43	10.43	-23.43	1830.3000	44.03	3.03	-16.03
2287.8750	51.83	10.83	-23.83	2287.8750	50.73	9.73	-22.73
2745.4500	47.35	6.35	-19.35	2745.4500	42.75	1.75	-14.75
3203.0250	42.85	1.85	-14.85	3203.0250	42.35	1.35	-14.35
3660.6000	52.74	11.74	-24.74	3660.6000	42.14	1.14	-14.14
4118.1750	46.76	5.76	-18.76	4118.1750	47.06	6.06	-19.06
4575.7500	46.17	5.17	-18.17	4575.7500	43.97	2.97	-15.97

METHOD OF MEASUREMENT : The tabulated data shows the results of the radiated field strength emissions test. The spectrum was scanned from 30 MHz to at least the tenth harmonic of the fundamental. This test was conducted per TIA/EIA STANDARD 603 using the substitution method. Measurements were made at the open field test site of ThruLab & ENGINEERING. located at 477-6, Hager-Ri, Yoju-Up, Yoju-Gun, Kyunggi-Do,469-803, Korea

THRU Lab & Engineering.

477-6, Hager-Ri, Yoju-Up, Yoju-Gun
Kyunggi-Do,469-803, Korea
T820318835092F820318835169 email thrukang@kornet.net

2.1053 **UNWANTED RADIATION**

90.210 (g) (3) The tabulated Data shows the results of the radiated Field strength emissions test. The spectrum was Scanned from 30 MHz to at least the 10th harmonic of The fundamental.

REQUIREMENTS : 43 + 10log(0.58) = 40.6 dB

Test result : High

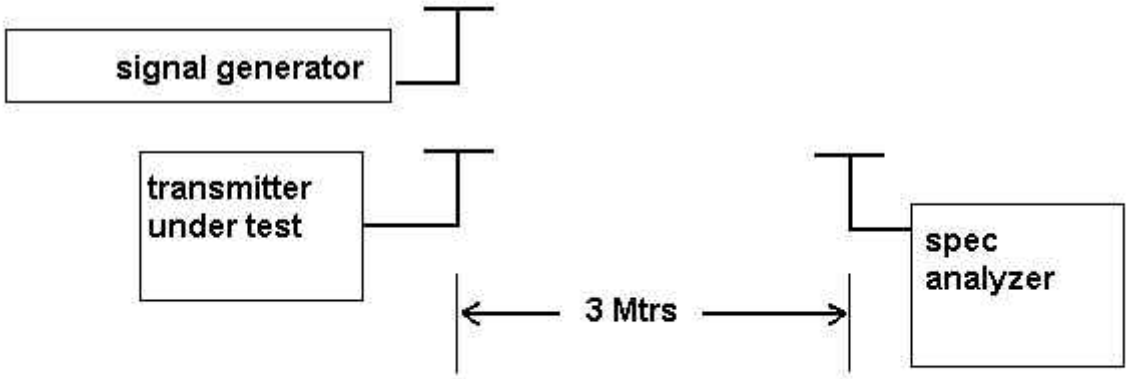
Horizontal				Vertical			
frequency	**dBc**	**Margin**	**dBm**	**frequency**	**dBc**	**Margin**	**dBm**
469.9650				469.9650			
939.9200	45.26	4.66	-17.66	939.9200	42.16	1.56	-14.56
1409.8750	48.74	8.14	-21.14	1409.8750	45.14	4.54	-17.54
1879.8300	48.11	7.51	-20.51	1879.8300	47.91	7.31	-20.31
2349.7850	48.31	7.71	-20.71	2349.7850	45.01	4.41	-17.41
2819.7400	49.34	8.74	-21.74	2819.7400	44.34	3.74	-16.74
3289.6950	43.50	2.90	-15.90	3289.6950	42.60	2.00	-15.00
3759.6500	43.20	2.60	-15.60	3759.6500	42.00	1.40	-14.40
4229.6050	44.56	3.96	-16.96	4229.6050	43.86	3.26	-16.26
4699.5600	42.01	1.41	-14.41	4699.5600	42.11	1.51	-14.51

METHOD OF MEASUREMENT : The tabulated data shows the results of the radiated field strength emissions test. The spectrum was scanned from 30 MHz to at least the tenth harmonic of the fundamental. This test was conducted per TIA/EIA STANDARD 603 using the substitution method. Measurements were made at the open field test site of ThruLab & ENGINEERING. located at 477-6, Hager-Ri, Yoju-Up, Yoju-Gun, Kyunggi-Do,469-803, Korea

THRU Lab & Engineering.

477-6, Hager-Ri, Yoju-Up, Yoju-Gun
Kyunggi-Do,469-803, Korea
T820318835092F820318835169 email thrukang@kornet.net

Method of Measuring Radiated Spurious Emissions



THRU Lab & Engineering.

477-6, Hager-Ri, Yoju-Up, Yoju-Gun
Kyunggi-Do,469-803, Korea
T820318835092F820318835169 email thrukang@kornet.net

BANDWIDTH LIMITATION

90.209 According to 90.203(3) For all other types of emissions, the maximum authorized bandwidth shall not be more than that normally authorized for voice operations. According to 90.200(5), Unless specified elsewhere, channel spacing and bandwidths that will be authorized in the following frequency bands are given in the following"STANDARD CHANNEL SPACING/BANDWIDTH" table.

Standard Channel Spacing/Bandwidth

Frequency band (MHz)	Channel spacing (KHz)	Authorized Bandwidth(kHz)
Below 25 ……		
25-50.	20	20
72-76	20	20
150-174	1)7.5	1,3)20/11.25/6
220-222	5	4
421-512	1)6.25	1,3)20/11.25/6
806-821/851-866	25	20
821-824/866-869	12.5	20
896-901/935-940	12.5	13.6
902-928……		
929-930	25	20
1427-1435……		
2450-2483.52……		
Above 2500……		

1) For stations authorized on or after August 18,1995.
3) Operations using equipment designed to operate with a 25kHz channel bandwidth will be authorized a 20kHz bandwidth.
Operations using equipment designed to operate with a 12.5kHz channel bandwidth will be authorized an 11.25kHz bandwidth.
Operations using equipment designed to operate with a 6.25kHz channel bandwidth will be authorized a 6kHz bandwidth.

Specification Limit: 20kHz

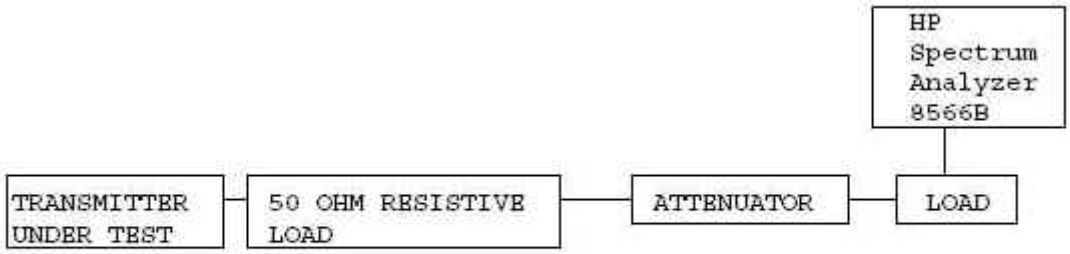
THRU Lab & Engineering.
477-6, Hager-Ri, Yoju-Up, Yoju-Gun
Kyunggi-Do,469-803, Korea
T820318835092F820318835169 email thrukang@kornet.net

2.1049 Audio Low Pass Filter
This UUT does not have a low pass filter

2.1049 Occupied bandwidth:

90.210(g)Emission Mask G.
For transmitters that are not equipped with an audio low pass filter pursuant to S90.211(b), the power of any emission must be attenuated below the unmodulated carrier power(P) as follows; (1) On any frequency removed from the center of the authorized bandwidth by a displacement frequency(fd in kHz) of more than 5 kHz but no more than 10kHz: At least 83log(fd/5)dB; (2) ON any frequency removed from the center of the authorized bandwidth by a displacement frequency(fd in kHz) of more than 10 kHz, but no more than 250% of the authorized bandwidth: At least 116log(fd/6.1)dB or 50+10log(P), or 70dB,whichever is the lesser attenuation; (3)On any frequency removed from the center of the authorized bandwidth by more than 250% of the authorized bandwidth:
At least 43+10log(P)dB.

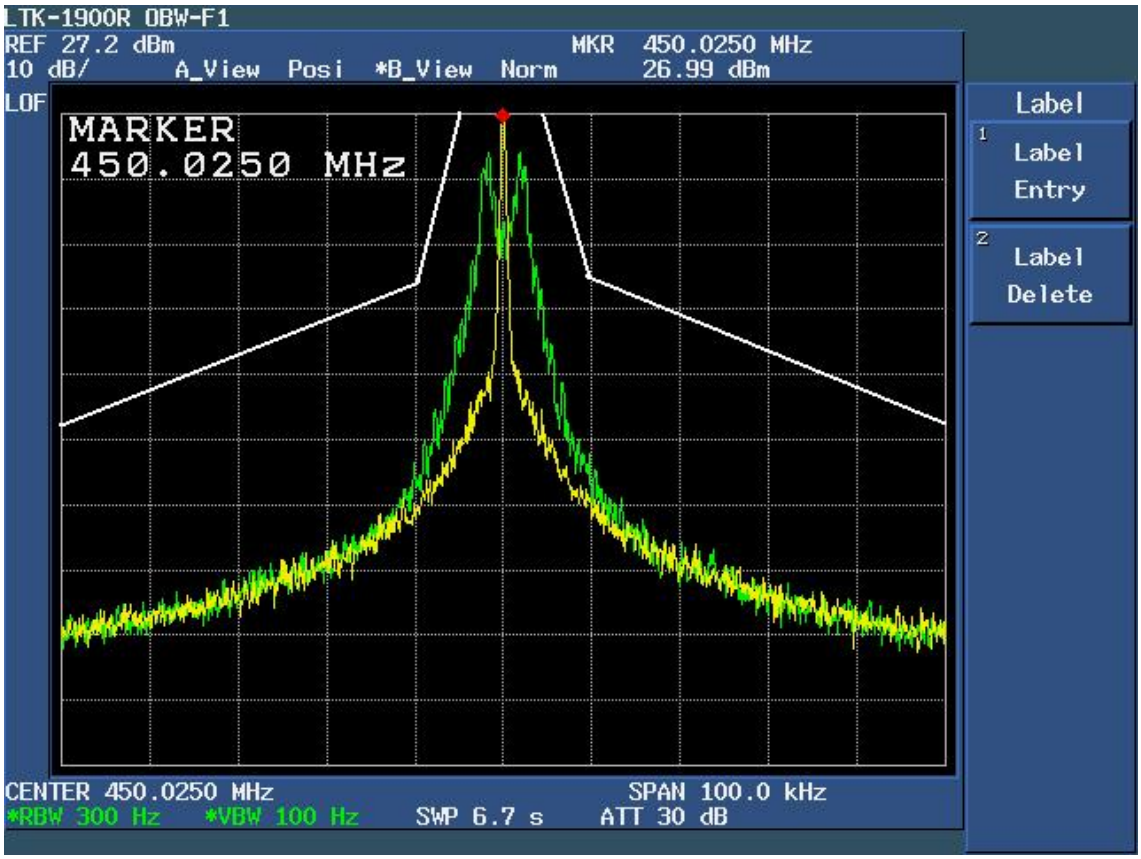
Method of Measuring Occupied Bandwidth



THRU Lab & Engineering.
477-6, Hager-Ri, Yoju-Up, Yoju-Gun
Kyunggi-Do,469-803, Korea
T820318835092F820318835169 email thrukang@kornet.net

EMISSIONS MASK(G) PLOT

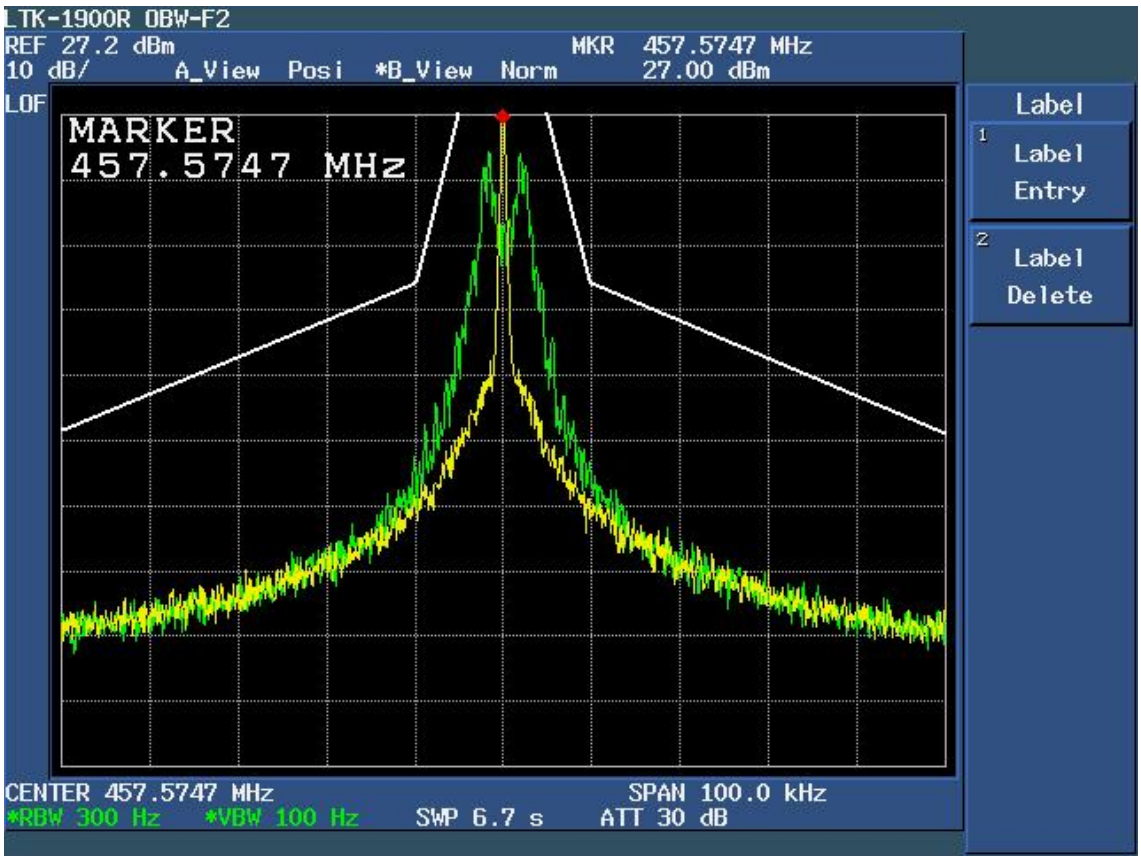
Low



THRU Lab & Engineering.

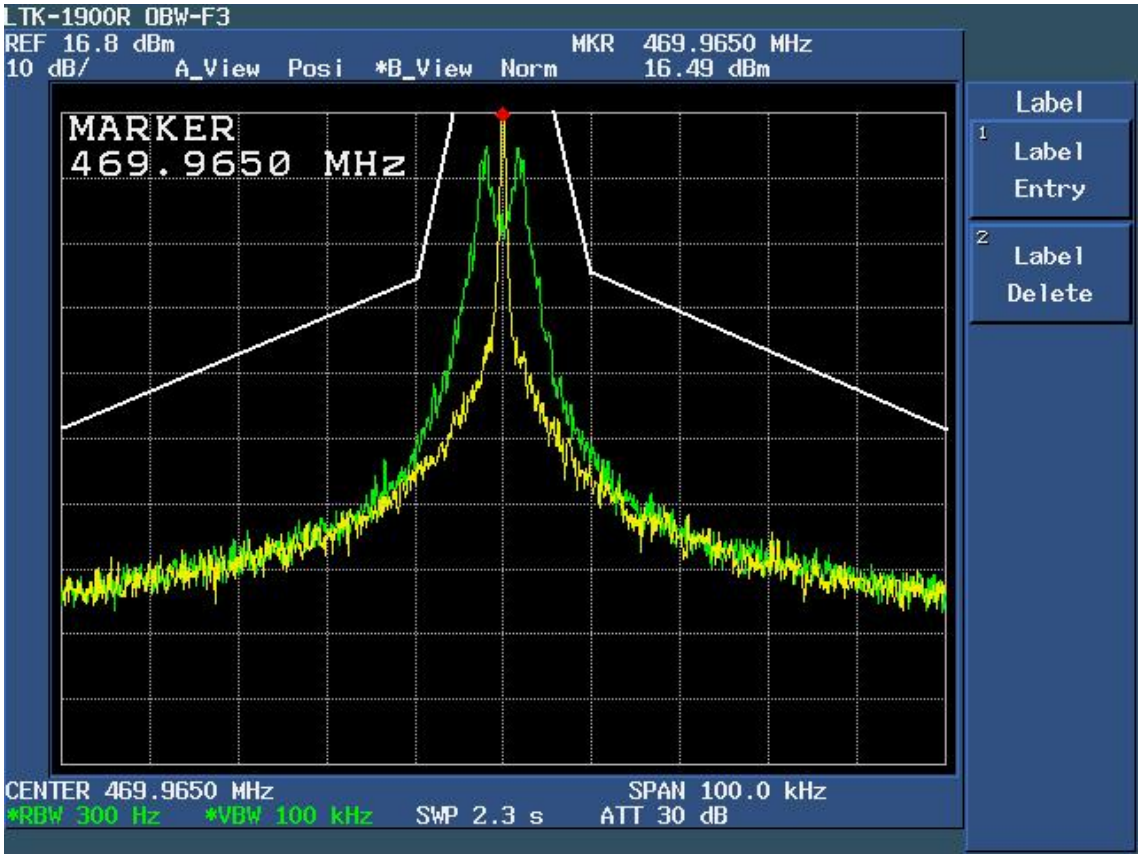
477-6, Hager-Ri, Yoju-Up, Yoju-Gun
Kyunggi-Do,469-803, Korea
T820318835092F820318835169 email thrukang@kornet.net

Mid



THRU Lab & Engineering.
477-6, Hager-Ri, Yoju-Up, Yoju-Gun
Kyunggi-Do,469-803, Korea
T820318835092F820318835169 email thrukang@kornet.net

High



THRU Lab & Engineering.

477-6, Hager-Ri, Yoju-Up, Yoju-Gun
Kyunggi-Do,469-803, Korea
T820318835092F820318835169 email thrukang@kornet.net

Frequency stability:

90.213 (a)(11)

Temperature and voltage tests were performed to verify that the frequency remains within the .00025%, 2.5 ppm specification limit, for 25 kHz spacing. The test was conducted as follows: The transmitter was placed in the temperature chamber at 25 degrees C and allowed to stabilize for one hour. The transmitter was keyed ON for one minute during which four frequency readings were recorded at 15 second intervals.The worse case number was taken for temperature plotting. The assigned channel frequency was considered to be the reference frequency.The temperature was then reduced to -30 degrees C after which the transmitter was again allowed to stabilize for one hour. The transmitter was keyed ON for one minute, and again frequency readings were noted at 15 second intervals. The worst case number was recorded for temperature plotting. This procedure was repeated in 10 degree increments up to +50 degrees C.

MEASUREMENT DATA:
Assigned Frequency (Ref. Frequency) :457.5750

REFERENCE VOTAGE (V DC)	12.0	REFERENCE FREQUENCY (MHz)	457.57500
TEMPERATURE	FREQUENCY(MHz)	PPM	LIMIT(ppm)
-30	457.576071	2.34	5.0
-20	457.575388	0.85	2.5
-10	457.575286	0.63	2.5
0	457.575383	0.84	2.5
10	457.575089	0.19	2.5
20	457.575132	0.29	2.5
30	457.574852	-0.32	2.5
40	457.574794	-0.45	2.5
50	457.574842	-0.35	2.5
+15% Battery : 13.8V	457.574862	-0.30	2.5
-15% Battery : 10.2V	457.574851	-0.33	2.5

THRU Lab & Engineering.

477-6, Hager-Ri, Yoju-Up, Yoju-Gun
Kyunggi-Do,469-803, Korea
T820318835092F820318835169 email thrukang@kornet.net

APPLICANT: LEE TECHNOLOGY KOREA CO.,LTD.

FCC ID: QBTLTK-1900R

NAME OF TEST: POWER LINE CONDUCTED INTERFERENCE

RULES PART NO.: 15.207

REQUIREMENTS:	**QUASI-PEAK**	**AVERAGE**
.15 – 0.5 MHz	66-56 dBuV	56-46 dBuV
0.5 – 5.0	56	46
5.0 – 30.	60	50

TEST PROCEDURE: ANSI STANDARD C63.4-2003. The spectrum was scanned from .15 to 30 MHz.

The highest emission read for Line 1 was 0.150MHz @ 43.2 dBuv/m

The highest emission read for Line 2 was 0.155MHz @ 44.0 dbuv/m

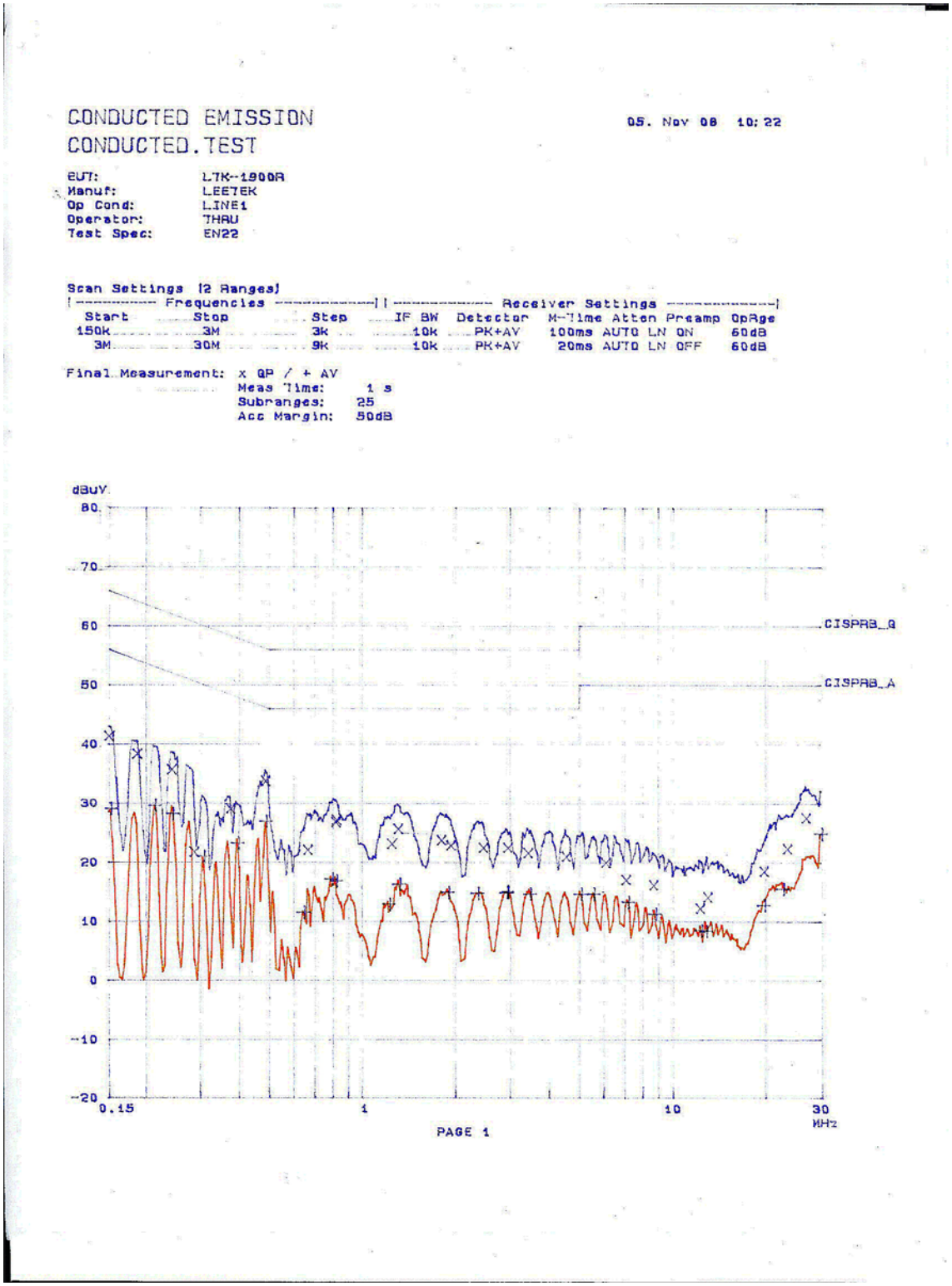
THE GRAPHS ON THE FOLLOWING PAGES REPRESENT THE EMISSIONS READ FOR POWER LINE CONDUCTED FOR THIS DEVICE.

TEST RESULTS: Both lines were observed. The measurements indicate that the unit DOES appear to meet the FCC requirements for this class of equipment.

THRU Lab & Engineering.

477-6, Hager-Ri, Yoju-Up, Yoju-Gun
Kyunggi-Do,469-803, Korea
T820318835092F820318835169 email thrukang@kornet.net

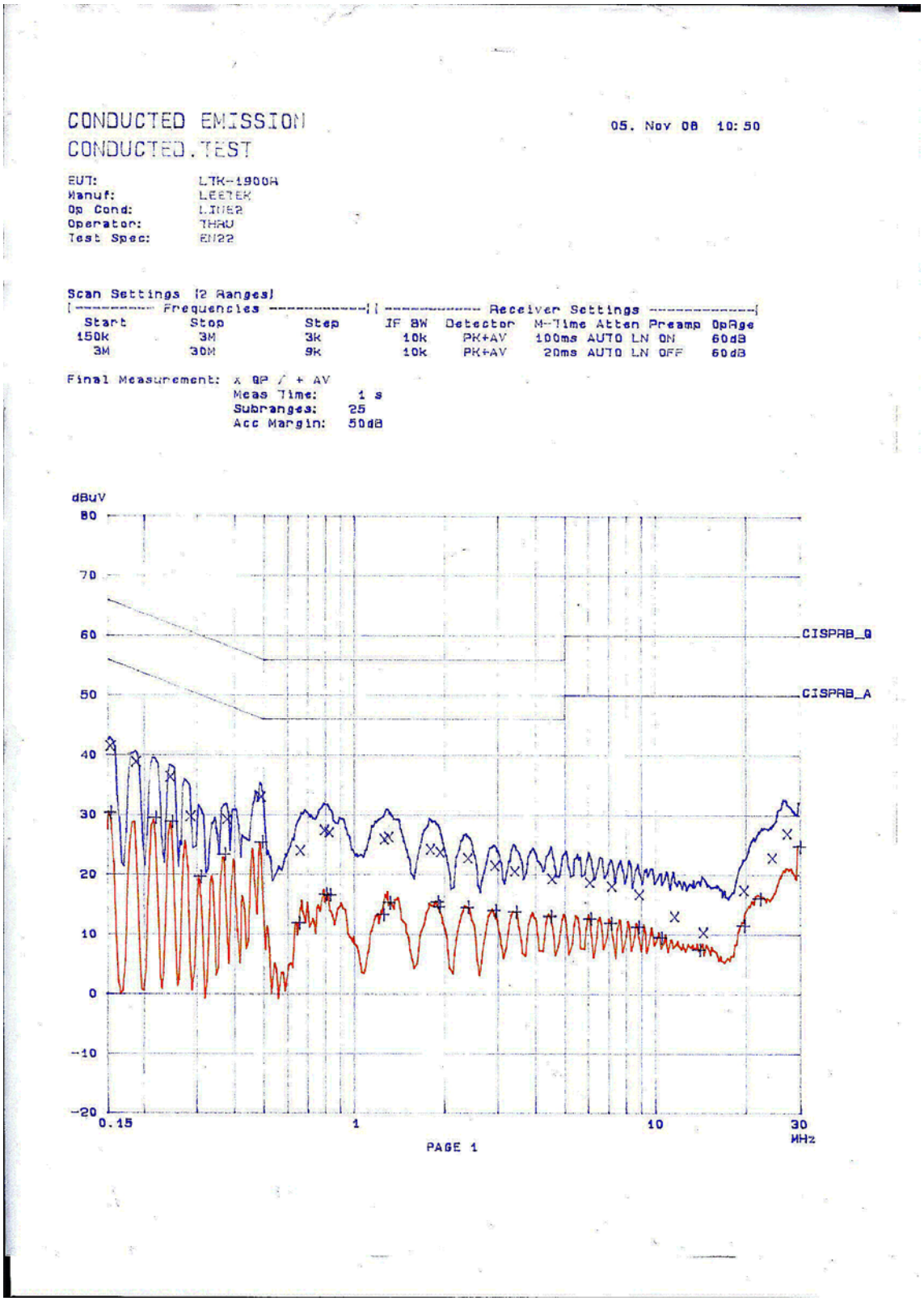
Line1(H)



THRU Lab & Engineering.

477-6, Hager-Ri, Yoju-Up, Yoju-Gun
Kyunggi-Do,469-803, Korea
T820318835092F820318835169 email thrukang@kornet.net

Line2(N)



THRU Lab & Engineering.
477-6, Hager-Ri, Yoju-Up, Yoju-Gun
Kyunggi-Do,469-803, Korea
T820318835092F820318835169 email thrukang@kornet.net

2.1055(a)(1) Frequency stability:
90.214 Transient Frequency Behavior

REQUIREMENTS: In the 450-500MHz frequency band, transient frequencies must be within the maximum frequency difference limits during the time interval indicated below for 25kHz Channels:

Time Interval	Maximum Frequency	Portable Radios 450-500 MHz
t 1	+25 kHz	10.0 ms
t 2	+12.5 kHz	25.0 ms
t 3	+25 kHz	10.0 ms

TEST PROCEEDURE: TIA/EIA TS603 PARA 2.2.19, the levels were set as follows;

1. Using the variable attenuator the transmitter level was set to 40 dB below the test receivers maximum input level, then the transmitter was turned off.

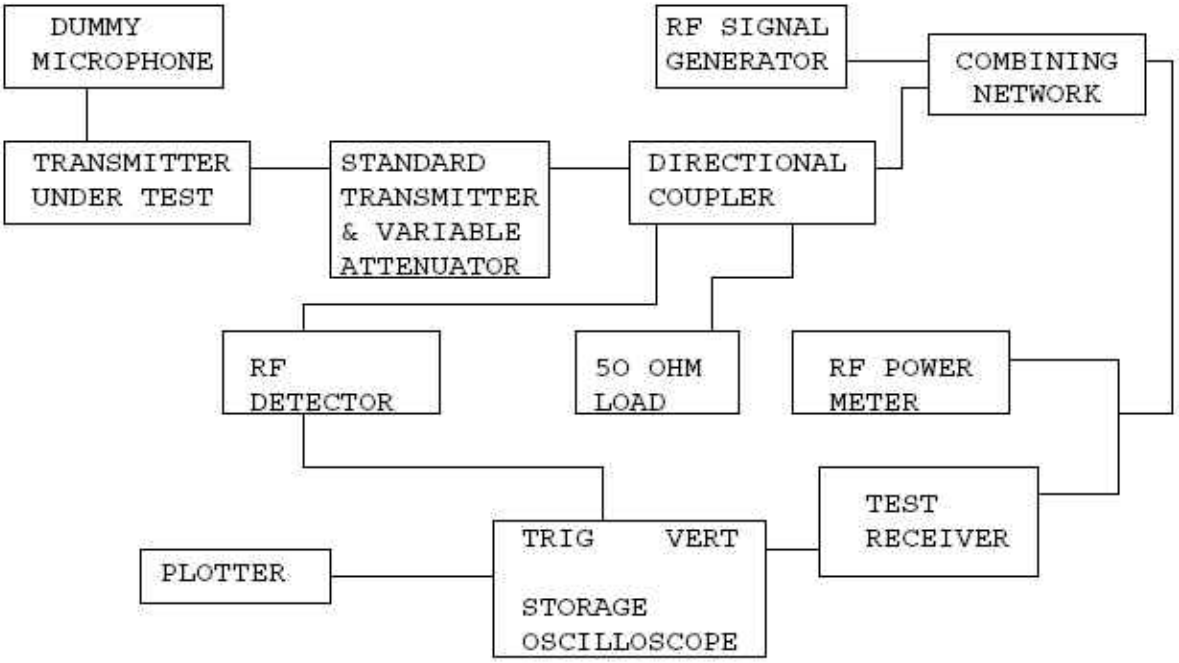
2. With the transmitter off the signal generator was set 20dB below the level of the transmitter in the above step, this level will be maintained with the signal generator through -out the test.

3. Reduce the attenuation between the transmitter and the RF detector by 30 dB.

4. With the levels set as above the transient frequency behavior was observed & recorded

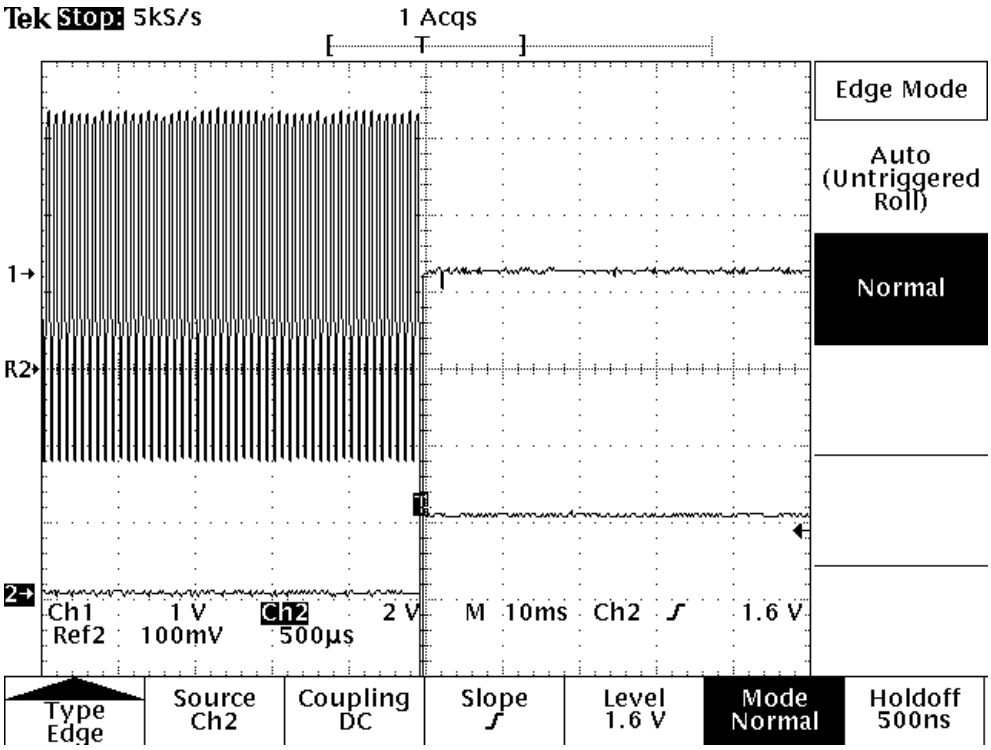
THRU Lab & Engineering.
477-6, Hager-Ri, Yoju-Up, Yoju-Gun
Kyunggi-Do,469-803, Korea
T820318835092F820318835169 email thrukang@kornet.net

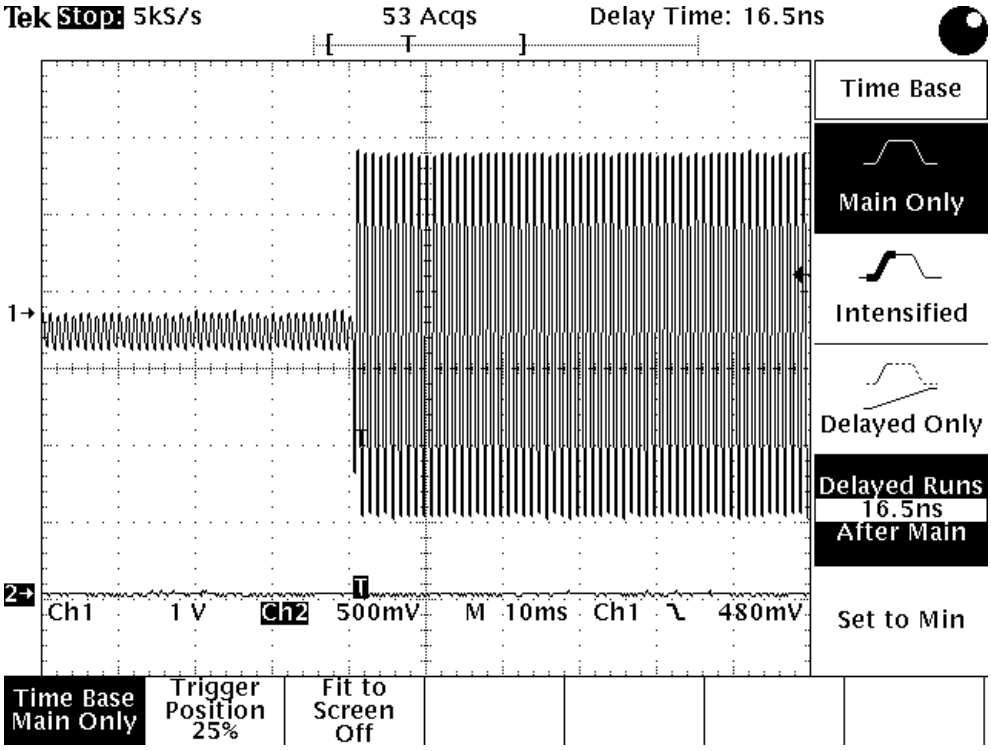
2.1055 Frequency stability:
90.214 Transient Frequency Behavior
(Continued)



THRU Lab & Engineering.

477-6, Hager-Ri, Yoju-Up, Yoju-Gun
Kyunggi-Do,469-803, Korea
T820318835092F820318835169 email thrukang@kornet.net





APPLICANT: LEE TECHNOLOGY KOREA CO.,LTD.
FCC ID: QBTLTK-1900R
REPORT #: TK-FR002

THRU Lab & Engineering.

477-6, Hager-Ri, Yoju-Up, Yoju-Gun
Kyunggi-Do,469-803, Korea
T820318835092F820318835169 email thrukang@kornet.net

TEST Equipment List

No	Description	Manufacturer	Model No.	Serial No.	Due Cal.	Used
1	Test Receiver	Rohde & Schwarz	ESHS 10	862970/018	2009.05.13	☐
2	Test Receiver	Rohde & Schwarz	ESVS 10	826008/014	2009.06.20	☐
3	Spectrum Analyzer	Hewlett Packard	8566B	2311A02394	2009.06.10	☒
4	Spectrum Analyzer	Advantest Corp.	R3261C	61720208	2009.06.10	☒
	Spectrum Analyzer	Advantest Corp.	R3273	101003536	2009.09.05	☒
5	Modulation Analyzer	Hewlett Packard	8901B	3438A05094	2009.05.29	☒
6	Audio analyzer	Hewlett Packard	8903B	3011A12915	2009.05.29	☒
7	Preamplifer	Hewlett Packard	8447F	2805A02570	2009.05.26	☐
8	Preamplifer	A.H. Systems	PAM-0118	164	2009.04.27	☐
9	Signal Generator	Hewlett Packard	8673D	2708A00448	2009.06.10	☒
10	Power Meter	Hewlett Packard	437B	312U24787	2009.04.29	☐
11	Power Sensor	Hewlett Packard	8482B	3318A06943	2009.06.29	☐
12	Loop Antenna	Rohde & Schwarz	HFH2-Z2.335.4711.52	826532/006	2009.01.31	☐
13	Dipole Antenna	Rohde & Schwarz	VHAP	574	2010.07.07	☐
14	Dipole Antenna	Rohde & Schwarz	VHAP	575	2010.07.17	☐
15	Dipole Antenna	Rohde & Schwarz	UHAP	546	2010.07.07	☐
16	Dipole Antenna	Rohde & Schwarz	UHAP	547	2010.07.07	☐
17	Biconical Antenna	Eaton Corp.	94455-1	0977	2010.07.03	☐
18	Biconical Antenna	EMCO	3104C	9111-2468	2010.07.03	☐
19	Log Periodic Antenna	EMCO	3146	2051	2010.06.05	☐
20	Log Periodic Antenna	EMCO	3146	8901-2320	2010.07.03	☐
21	Horn Antenna	A.H. Systems	SAS-571	414	2009.03.17	☒
22	LISN	EMCO	3825/2	9111-1912	2008.12.12	☐
23	LISN	Kyoritsu	KNW-242	8-923-2	2009.05.23	☒
24	Waveform Generator	Hewlett Packard	33120A	US34001190	2009.05.29	☐

25	Digital Oscilloscope	Tektronix	TDS 340A	B012287	2009.06.10	☒
26	Dummy Load	Bird Electronics	8251	11511	2009.02.02	☐