RADIO TEST REPORT

Report No: STS2009120W02

Issued for

GOLD CABLE VIET NAM COMPANY LIMITED

Road D3,Part D,Pho Noi A Industrial Park,Lac Hong Commune,Van LamDistrict,Hung Yen Province,Viet Nam.

Product Name:	FM Transmitter
Brand Name:	MAGNAVOX
Model Name:	MBT3358
Series Model:	GCBTD4
FCC ID:	2AXVP019240
Test Standard:	FCC Part 15.239

Shenzhen STS Test Services Co., Ltd.
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TEL: +86-755 3688 6288 FAX: +86-755 3688 6277 E-mail:sts@stsapp.com

TEST REPORT CERTIFICATION

Applicant's Name	:	GOLD CABLE VIET NAM COMPANY LIMITED
Address	:	Road D3,Part D,Pho Noi A Industrial Park,Lac Hong Commune,Van LamDistrict,Hung Yen Province,Viet Nam.
Manufacturer's Name	:	GOLD CABLE VIET NAM COMPANY LIMITED
Address	:	Road D3,Part D,Pho Noi A Industrial Park,Lac Hong Commune,Van Lam District,Hung Yen Province,Viet Nam.

Product Description

Product Name	:	FM Transmitter
Brand Name	:	MAGNAVOX
Model Name	:	MBT3358
Series Model	:	GCBTD4
Test Standards	:	FCC Part15.239
Test Procedure	:	ANSI C63.10: 2013

This device described above has been tested by STS, the test results show that the equipment under test (EUT) is in compliance with the FCC requirements. And it is applicable only to the tested sample identified in the report.
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Date of Test .....:

Date of receipt of test item	:	27 Sept. 2020
Date (s) of performance of tests	:	27 Sept. 2020 ~ 23 Oct. 2020
Date of Issue	:	23 Oct. 2020
Test Result	:	**Pass**

Testing Engineer : Chris Chen
(Chris Chen)

Technical Manager : Sean She
(Sean she)

Authorized Signatory : Vita Li
(Vita Li)

TABLE OF CONTENTS Page

1. SUMMARY OF TEST RESULTS

Test procedures according to the technical standards:

FCC Part 15.239			
Standard Section	Test Item	Judgment	Remark
15.207	Conducted Emission	N/A	--
15.209 15.239(b)	Radiated Emission Field strength emission	PASS	--
15.205	Restricted bands of operation	PASS	--
15.203	Antenna Requirement	PASS	--
15.239(a)	20dB Bandwidth	PASS	--

NOTE: (1) "N/A" denotes test is not applicable in this Test Report.

(2) All tests are according to ANSI C63.10-2013.

1.1 TEST FACTORY

SHENZHEN STS TEST SERVICES CO., LTD
Add. : A 1/F, Building B, Zhuoke Science Park, No.190 Chongqing Road, HepingShequ, Fuyong Sub-District, Bao'an District, Shenzhen, Guang Dong, China

FCC test Firm Registration Number: 625569

IC test Firm Registration Number: 12108A

A2LA Certificate No.: 4338.01

1.2 MEASUREMENT UNCERTAINTY

The reported uncertainty of measurement **y** ± **U**, where expended uncertainty **U** is based on a standard uncertainty multiplied by a coverage factor of **k=2**, providing a level of confidence of approximately **95** %.

No.	Item	Uncertainty
1	RF output power, conducted	±0.68dB
2	Unwanted Emissions, conducted	±2.988dB
3	All emissions, radiated 30-1GHz	±5.6dB
4	All emissions, radiated 1G-6GHz	±5.5dB
5	All emissions, radiated>6G	±5.8dB
6	Conducted Emission (9KHz-150KHz)	±3.37dB
7	Conducted Emission (150KHz-30MHz)	±3.83dB

2. GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF EUT

Product Name	FM Transmitter
Trade Name	MAGNAVOX
Model Name	MBT3358
Serial Model	GCBTD4
Model Difference	Only the model name is different.
Product Description	The EUT is a FM Transmitter Operation Frequency: 88MHz ~108MHz Modulation Type: FM Antenna Designation: Please see Note 2. Antenna Gain (dBi) -0.58dBi
Power Rating	Input: 12V~24V Output: 5V 2.1A
Hardware version number	KWD-D4A-AC6921A-V1.0.pcb
Software version number	D4
Connecting I/O Port(s)	Please refer to the Note 1.

Note:

1. For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual.
2. Table for filed Antenna

Ant.	Brand	Model Name	Antenna Type	Connector	Gain (dBi)	NOTE
A	MAGNAVOX	MBT3358	Monopole	N/A	-0.58 dBi	ANT

3.

Channel List					
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
01	88.1	/	/	/	/
02	88.2	/	/	/	/
03	88.3	100	98	/	/
/	/	101	98.1	197	107.7
/	/	102	98.2	198	107.8
/	/	/	/	199	107.9

Remark: The EUT has 199 channels.

2.2 DESCRIPTION OF TEST MODES

To investigate the maximum EMI emission characteristics generates from EUT, the test system was pre-scanning tested base on the consideration of following EUT operation mode or test configuration mode which possible have effect on EMI emission level. Each of these EUT operation mode(s) or test configuration mode(s) mentioned above was evaluated respectively.

Pretest Mode	Description
Mode 1	TX Mode(Low channel/CH 1)
Mode 2	TX Mode(Middle channel/CH 101)
Mode 3	TX Mode(High channel/CH 199)

	For Radiated Emission
Final Test Mode	Description
Mode 1	TX Mode(Low channel/CH 1)
Mode 2	TX Mode(Middle channel/CH 101)
Mode 3	TX Mode(High channel/CH 199)

Note:

(1) The measurements are performed at the highest, middle, lowest available channels.

(2) The measurements are performed at all Bit Rate of Transmitter, the worst data was reported

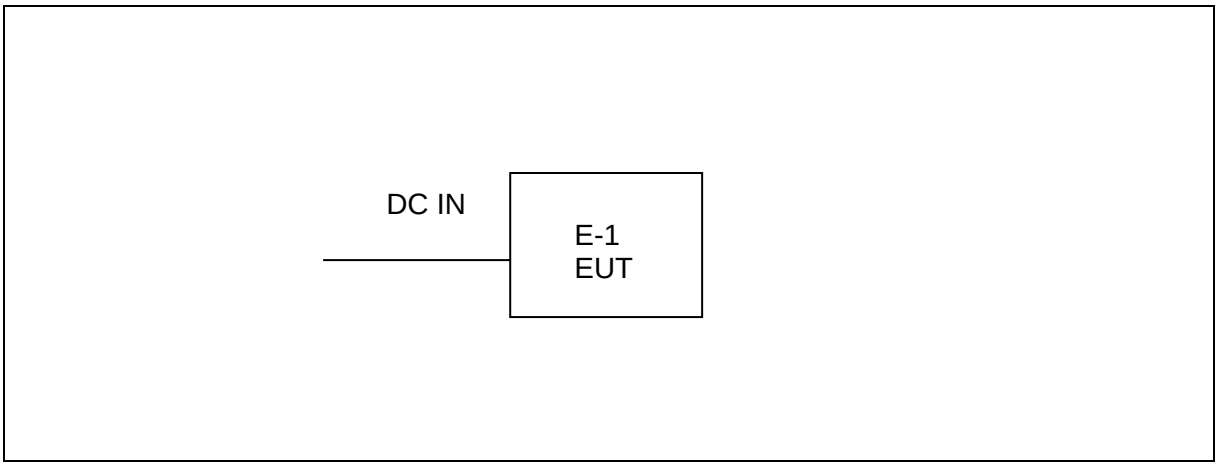
2.3 TEST SOFTWARE AND POWER LEVEL

During testing channel & power controlling software provided by the customer was used to control the operating channel as well as the output power level.

RF Function	Type	Mode Or Modulation type	Ant Gain(dBi)	Power Class	Software For Testing
FM	TX	FM	-0.58	Default	No software is required, the device under test enters the transmitting state after power on

2.4 BLOCK DIGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED

Radiated Spurious Emission Test



2.5 DESCRIPTION OF NECESSARY ACCESSORIES AND SUPPORT UNITS

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

Necessary accessories

Item	Equipment	Mfr/Brand	Model/Type No.	Length	Note
N/A	N/A	N/A	N/A	N/A	N/A

Support units

Item	Equipment	Mfr/Brand	Model/Type No.	Length	Note
N/A	N/A	N/A	N/A	N/A	N/A

Note:

(1) For detachable type I/O cable should be specified the length in cm in 『Length』 column.

2.6 EQUIPMENTS LIST FOR ALL TEST ITEMS

Radiation Test equipment

Kind of Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until
Test Receiver	R&S	ESCI	101427	2020.10.12	2021.10.11
Signal Analyzer	R&S	FSV 40-N	101823	2020.10.10	2021.10.09
Active loop Antenna	ZHINAN	ZN30900C	16035	2019.07.11	2021.07.10
Bilog Antenna	TESEQ	CBL6111D	34678	2020.10.12	2022.10.11
Horn Antenna	SCHWARZBECK	BBHA 9120D	02014	2019.10.15	2021.10.14
SHF-EHF Horn Antenna (18G-40GHz)	A-INFO	LB-180400-KF	J211020657	2020.10.12	2022.10.11
Pre-Amplifier (0.1M-3GHz)	EM	EM330	060665	2020.10.12	2021.10.11
Pre-Amplifier (1G-18GHz)	SKET	LNPA-01018G-45	SK2018080901	2020.10.12	2021.10.11
Pre-Amplifier (18G-40GHz)	SKET	LNPA-1840-50	SK2018101801	2020.10.10	2021.10.09
Temperature & Humidity	HH660	Mieo	N/A	2020.10.13	2021.10.12
Turn table	EM	SC100_1	60531	N/A	N/A
Antenna mast	EM	SC100	N/A	N/A	N/A
Test SW	FARAD	EZ-EMC(Ver.STSLAB-03A1 RE)			

RF Connected Test

Kind of Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until
MIMO Power measurement test Set	Keysight	U2021XA	MY55520005	2020.10.10	2021.10.09
			MY55520006	2020.10.10	2021.10.09
			MY56120038	2020.10.10	2021.10.09
			MY56280002	2020.10.10	2021.10.09
Signal Analyzer	Agilent	N9020A	MY51110105	2020.03.05	2021.03.04
Temperature & Humidity	HH660	Mieo	N/A	2020.10.13	2021.10.12
MIMO Power measurement test Set	Keysight	U2021XA	MY55520005	2020.10.10	2021.10.09
Test SW	FARAD	EZ-EMC(Ver.STSLAB-03A1 RE)			

3. EMC EMISSION TEST

3.1 CONDUCTED EMISSION MEASUREMENT

3.1.1 POWER LINE CONDUCTED EMISSION LIMITS

The radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies, within the band 150 kHz to 30 MHz, shall not exceed the limits in the following table.

FREQUENCY (MHz)	Class B (dBuV)		Standard
	Quasi-peak	Average	
0.15 -0.5	66 - 56 *	56 - 46 *	CISPR
0.50 -5.0	56.00	46.00	CISPR
5.0 -30.0	60.00	50.00	CISPR

0.15 -0.5	66 - 56 *	56 - 46 *	FCC
0.50 -5.0	56.00	46.00	FCC
5.0 -30.0	60.00	50.00	FCC

Note:

(1) The tighter limit applies at the band edges.
(2) The limit of " * " marked band means the limitation decreases linearly with the logarithm of the frequency in the range.

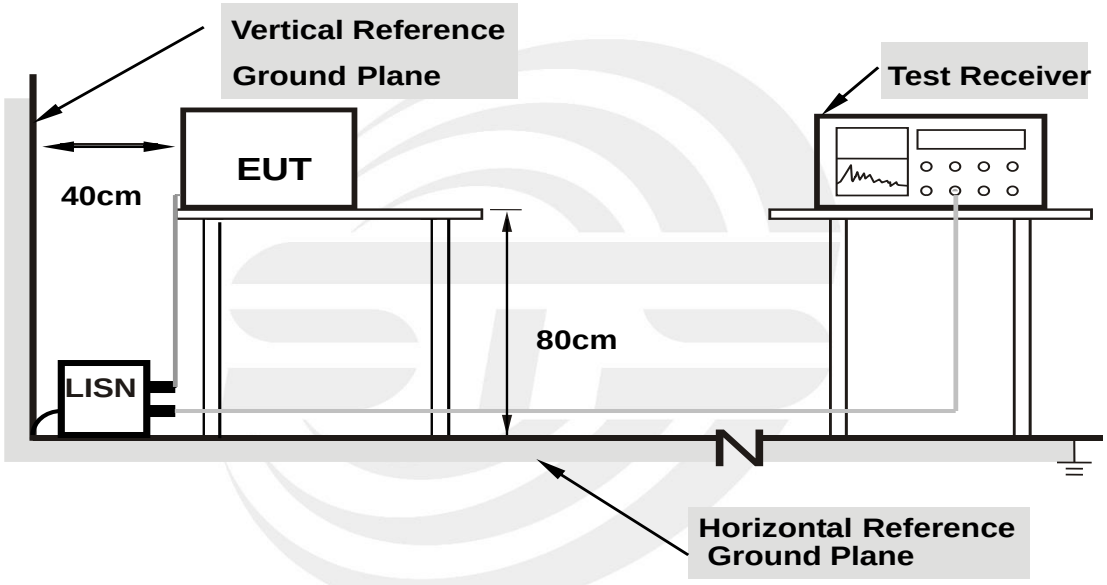
The following table is the setting of the receiver

Receiver Parameters	Setting
Attenuation	10 dB
Start Frequency	0.15 MHz
Stop Frequency	30 MHz
IF Bandwidth	9 kHz

3.2 TEST PROCEDURE

a. The EUT was 0.8 meters from the horizontal ground plane and 0.4 meters from the vertical ground plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). All other support equipments powered from additional LISN(s). The LISN provide 50 Ohm/ 50uH of coupling impedance for the measuring instrument.
b. Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.
c. I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.
d. LISN at least 80 cm from nearest part of EUT chassis.
e. For the actual test configuration, please refer to the related Item –EUT Test Photos.

3.3 TEST SETUP



Note: 1. Support units were connected to second LISN.
2. Both of LISNs (AMN) are 80 cm from EUT and at least 80 cm from other units and other metal planes support units.

3.4 EUT OPERATING CONDITIONS

The EUT was configured for testing in a typical fashion (as a customer would normally use it). The EUT has been programmed to continuously transmit during test. This operating condition was tested and used to collect the included data.

3.5 TEST RESULTS

Temperature:	23.5℃	Relative Humidity:	59%
Test Voltage:	DC 24V	Phase:	L/N
Test Mode:	N/A		

Note: EUT is only power by DC Power, So it is not applicable for this test.

4. RADIATED EMISSION MEASUREMENT

4.1 RADIATED EMISSION LIMITS

In any 100 kHz bandwidth outside the operating frequency band. In case the emission fall within the Restricted band specified on Part15.205 (a)&209(a) limit in the table and according to ANSI C63.10-2013 below has to be followed.

Frequencies (MHz)	Field Strength (micorvolts/meter)	Measurement Distance (meters)
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30.0	30	30
30~88	100	3
88~216	150	3
216~960	200	3
Above 960	500	3

NOTE:

a) Field Strength (dBμV/m) = 20*log[Field Strength (μV/m)].

b) In the emission tables above, the tighter limit applies at the Band edge.

c) The field strength of 88~108MHz within the permitted 200 kHz band shall not exceed 250 microvolts/meter at 3 meters.

LIMITS OF RADIATED EMISSION MEASUREMENT (1GHz-25 GHz)

FREQUENCY (MHz)	(dBuV/m) (at 3M)	
	PEAK	AVERAGE
Above 1000	74	54

Notes:

(1) The limit for radiated test was performed according to FCC PART 15C.

(2) The tighter limit applies at the band edges.

(3) Emission level (dBuV/m)=20log Emission level (uV/m).

LIMITS OF RESTRICTED FREQUENCY BANDS

FREQUENCY (MHz)	FREQUENCY (MHz)	FREQUENCY (MHz)	FREQUENCY (GHz)
0.090-0.110	16.42-16.423	399.9-410	4.5-5.15
0.495-0.505	16.69475-16.69525	608-614	5.35-5.46
2.1735-2.1905	16.80425-16.80475	960-1240	7.25-7.75
4.125-4.128	25.5-25.67	1300-1427	8.025-8.5
4.17725-4.17775	37.5-38.25	1435-1626.5	9.0-9.2
4.20725-4.20775	73-74.6	1645.5-1646.5	9.3-9.5
6.215-6.218	74.8-75.2	1660-1710	10.6-12.7
6.26775-6.26825	108-121.94	1718.8-1722.2	13.25-13.4
6.31175-6.31225	123-138	2200-2300	14.47-14.5
8.291-8.294	149.9-150.05	2310-2390	15.35-16.2
8.362-8.366	156.52475-156.52525	2483.5-2500	17.7-21.4

8.37625-8.38675	156.7-156.9	2690-2900	22.01-23.12
8.41425-8.41475	162.0125-167.17	3260-3267	23.6-24.0
12.29-12.293	167.72-173.2	3332-3339	31.2-31.8
12.51975-12.52025	240-285	3345.8-3358	36.43-36.5
12.57675-12.57725	322-335.4	3600-4400	Above 38.6
13.36-13.41			

For Radiated Emission

Spectrum Parameter	Setting
Attenuation	Auto
Detector	Peak/QP/AV
Start Frequency	9 KHz/150KHz(Peak/QP/AV)
Stop Frequency	150KHz/30MHz(Peak/QP/AV)
RB / VB (emission in restricted band)	200Hz (From 9kHz to 0.15MHz)/ 9KHz (From 0.15MHz to 30MHz); 200Hz (From 9kHz to 0.15MHz)/ 9KHz (From 0.15MHz to 30MHz)

Spectrum Parameter	Setting
Attenuation	Auto
Detector	Peak/QP
Start Frequency	30 MHz(Peak/QP)
Stop Frequency	1000 MHz (Peak/QP)
RB / VB (emission in restricted band)	120 KHz / 300 KHz

Spectrum Parameter	Setting
Attenuation	Auto
Detector	Peak/AV
Start Frequency	1000 MHz(Peak/AV)
Stop Frequency	10th carrier hamonic(Peak/AV)
RB / VB (emission in restricted band)	1 MHz / 3 MHz(Peak) 1 MHz/1/T MHz(AVG)

For Restricted band

Spectrum Parameter	Setting
Detector	Peak/AV
Start/Stop Frequency	Lower Band Edge: 30 to 100 MHz Upper Band Edge: 100 to 150 MHz
RB / VB	1 MHz / 3 MHz(Peak) 1 MHz/1/T MHz(AVG)

Receiver Parameter	Setting
Attenuation	Auto
Start ~ Stop Frequency	9kHz~90kHz / RB 200Hz for PK & AV
Start ~ Stop Frequency	90kHz~110kHz / RB 200Hz for QP
Start ~ Stop Frequency	110kHz~490kHz / RB 200Hz for PK & AV
Start ~ Stop Frequency	490kHz~30MHz / RB 9kHz for QP
Start ~ Stop Frequency	30MHz~1000MHz / RB 120kHz for QP

4.2 TEST PROCEDURE

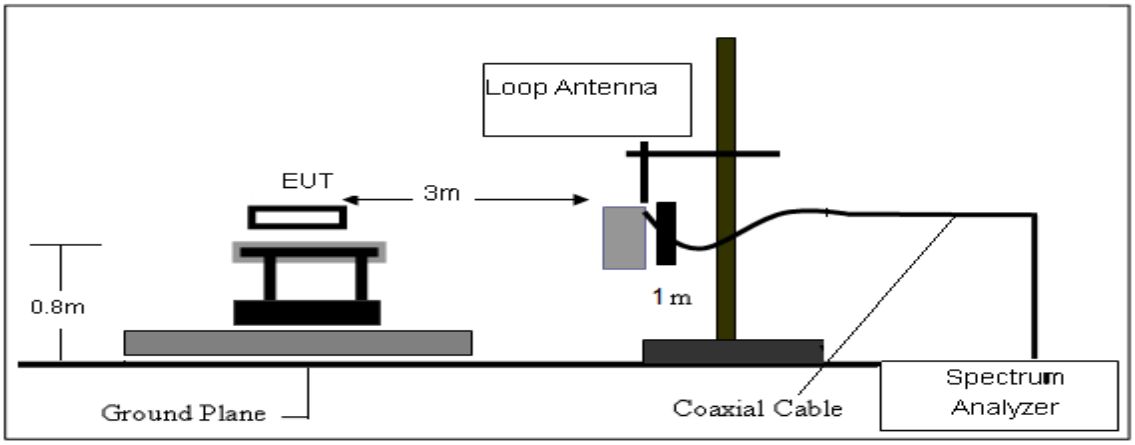
a. The test is performed in a 3m Semi-Anechoic Chamber; the antenna factor, cable loss and so on of the site (factors) is calculated to correct the reading. The EUT is placed on a 0.8m high insulating Turn Table, and keeps 3m away from the Test Antenna, which is mounted on a variable-height antenna master tower. For the test Antenna
b. In the frequency range of 9KHz to 30MHz, magnetic field is measured with Loop Test Antenna. The Test Antenna is positioned with its plane vertical at 1m distance from the EUT. The center of the Loop Test Antenna is 1m above the ground. During the measurement the Loop Test Antenna rotates about its vertical axis for maximum response at each azimuth about the EUT.
c. In the frequency range above 30MHz, Bi-Log Test Antenna (30MHz to 1GHz) used. Test Antenna is 3m away from the EUT. Test Antenna height is varied from 1m to 4m above the ground to determine the maximum value of the field strength. The emission levels at both horizontal and vertical polarizations should be tested.
f. The initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured.
g. If the Peak Mode measured value compliance with and lower than Quasi Peak Mode Limit, the EUT shall be deemed to meet QP Limits and then no additional QP Mode measurement performed.
h. For the actual test configuration, please refer to the related Item –EUT Test Photos.

NOTE:

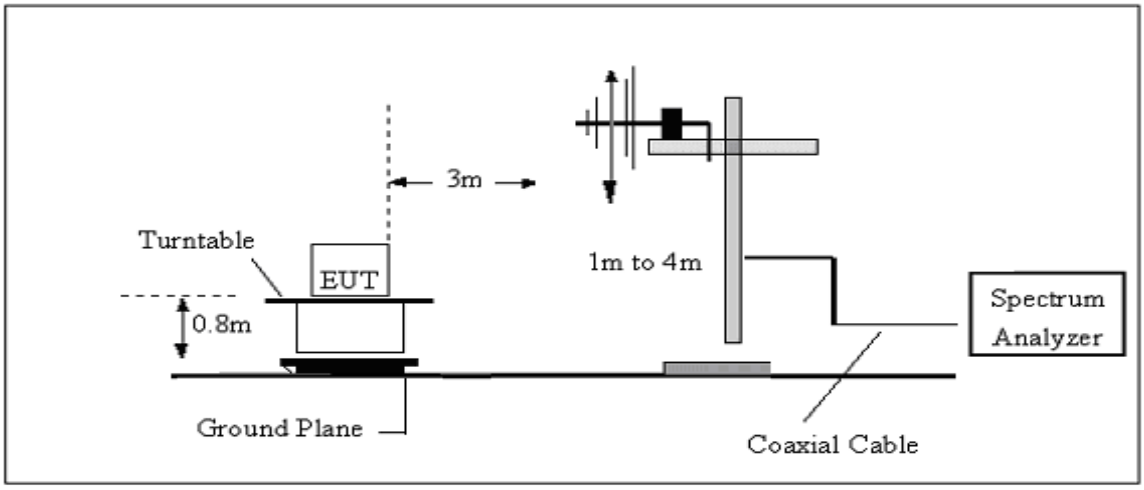
Both horizontal and vertical antenna polarities were tested
and performed pretest to three orthogonal axis. The worst case emissions were reported

4.3 TEST SETUP

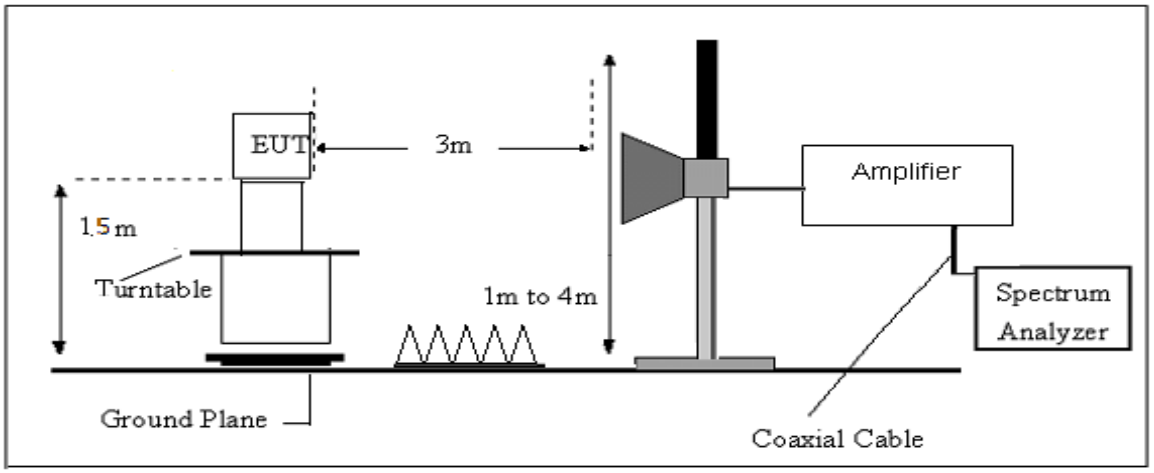
(A) Radiated Emission Test-Up Frequency Below 30MHz



(B) Radiated Emission Test-Up Frequency 30MHz~1GHz



(C) Radiated Emission Test-Up Frequency Above 1GHz



4.4 EUT OPERATING CONDITIONS

The EUT tested system was configured as the statements of 2.3 Unless otherwise a special operating condition is specified in the follows during the testing.

4.5 FIELD STRENGTH CALCULATION

The field strength is calculated by adding the Antenna Factor and Cable Factor and subtracting the Amplifier Gain and Duty Cycle Correction Factor (if any) from the measured reading. The basic equation with a sample calculation is as follows:

FS = RA + AF + CL - AG

Where

FS = Field Strength

CL = Cable Attenuation Factor (Cable Loss)

RA = Reading Amplitude

AG = Amplifier Gain

AF = Antenna Factor

For example

Frequency	FS	RA	AF	CL	AG	Factor
(MHz)	(dBμV/m)	(dBμV/m)	(dB)	(dB)	(dB)	(dB)
300	40	58.1	12.2	1.6	31.9	-18.1

Factor=AF+CL-AG

4.6 TEST RESULTS

(9KHz-30MHz)

Temperature:	23.3(C)	Relative Humidity:	60%RH
Test Voltage:	DC 24V	Test Mode:	TX Mode

Freq.	Reading	Limit	Margin	State	Test Result
(MHz)	(dBuV/m)	(dBuV/m)	(dB)	P/F	
--	--	--	--	--	PASS
--	--	--	--	--	PASS

Note:

The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.

Distance extrapolation factor =40 log (specific distance/test distance)(dB);

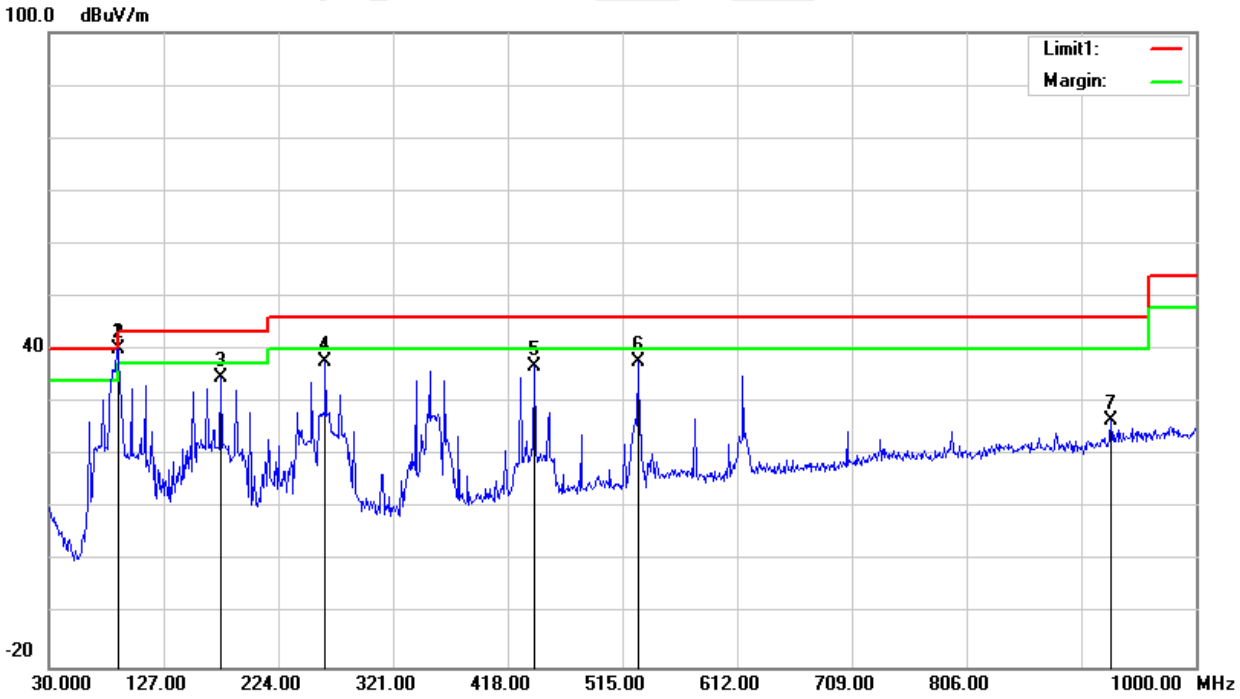
Limit line = specific limits (dBuv) + distance extrapolation factor.

Between 30-1000MHz

Temperature:	23.4 ℃	Relative Humidity:	62%
Test Voltage**:**	DC 24V	Phase:	Horizontal
Test Mode:	Mode 1		

Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
88.1000	61.95	-21.72	40.23	68.00	-27.77	peak
88.1000	61.90	-21.72	40.18	48.00	-7.82	AVG
175.5000	54.89	-20.04	34.85	43.50	-8.65	peak
263.7700	52.63	-14.75	37.88	46.00	-8.12	peak
440.3100	47.03	-10.08	36.95	46.00	-9.05	peak
528.5800	45.26	-7.51	37.75	46.00	-8.25	peak
928.2200	26.21	0.44	26.65	46.00	-19.35	peak

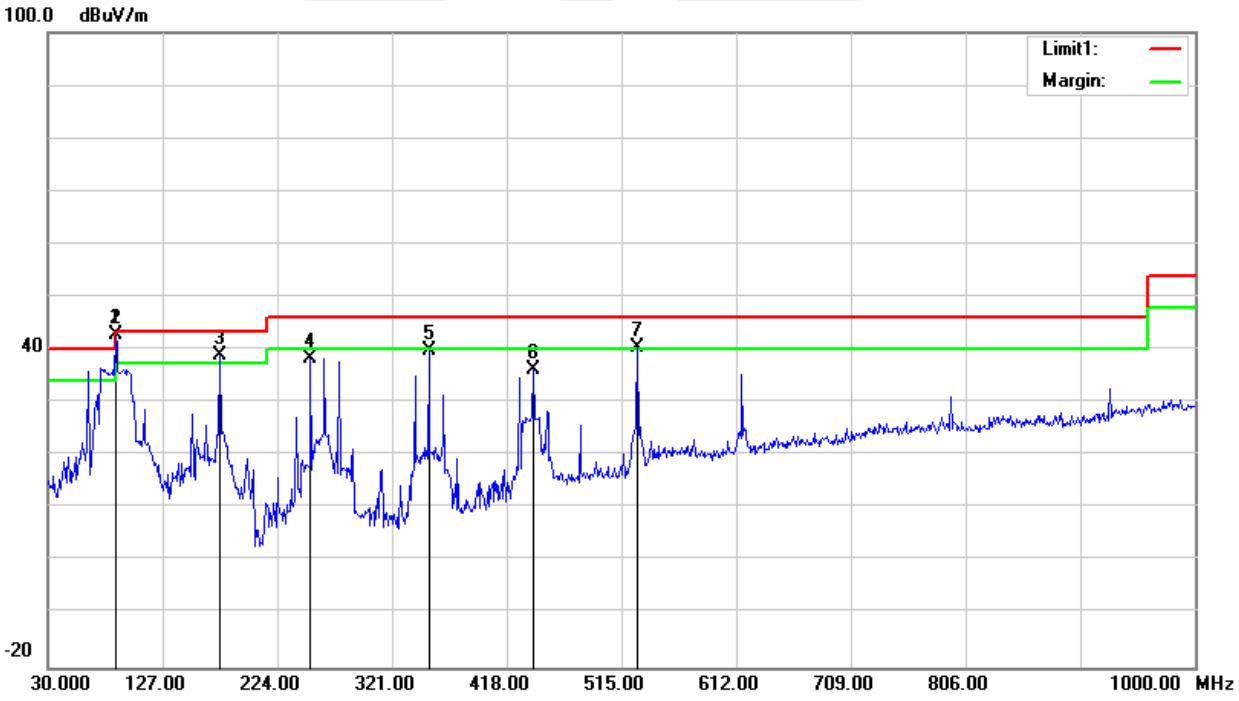
Remark:
1. Margin = Result (Result =Reading + Factor)–Limit
2. Factor= Antenna factor+Cable attenuation factor(cable loss)-Amplifier gain



Temperature:	23.4 ℃	Relative Humidity:	62%
Test Voltage:	DC 24V	Phase:	Vertical
Test Mode:	Mode 1		

Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
88.1000	64.75	-21.84	42.91	68.00	-25.09	peak
88.1000	64.71	-21.84	42.87	48.00	-5.13	AVG
175.5000	58.98	-20.04	38.94	43.50	-4.56	peak
252.1300	54.14	-15.80	38.34	46.00	-7.66	peak
352.0400	52.72	-13.02	39.70	46.00	-6.30	peak
440.3100	46.29	-10.08	36.21	46.00	-9.79	peak
528.5800	47.90	-7.51	40.39	46.00	-5.61	peak

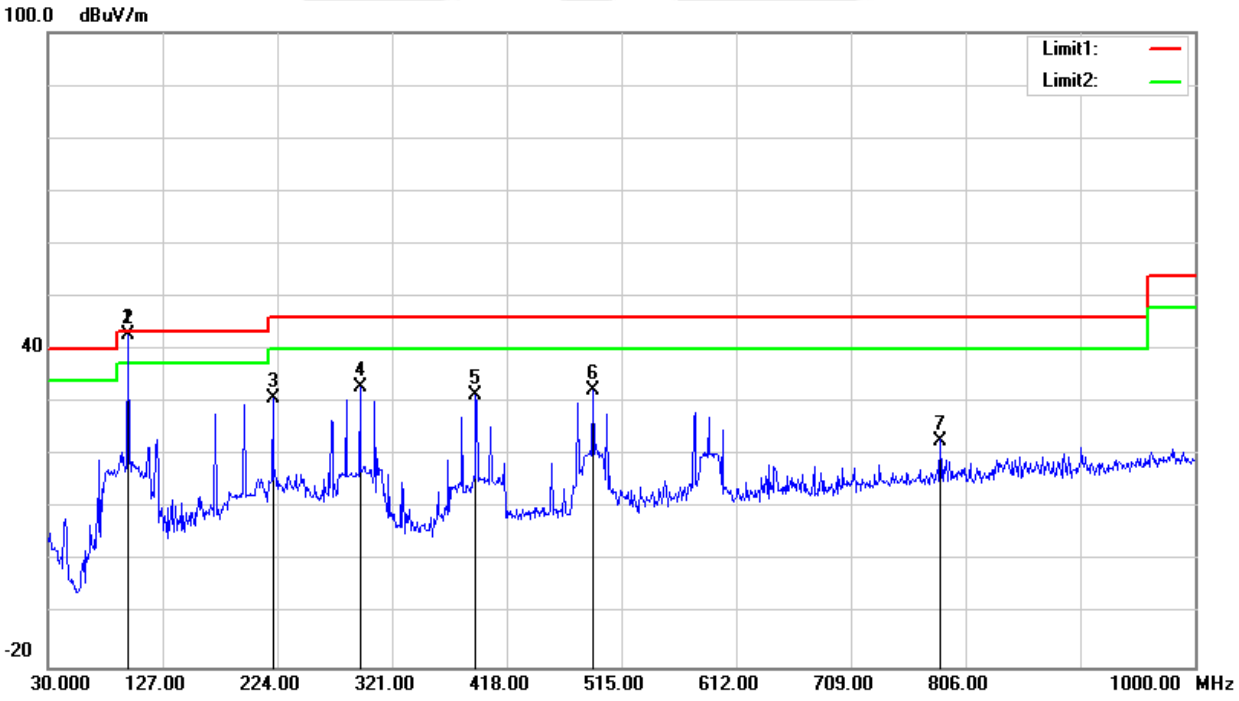
Remark:
1. Margin = Result (Result =Reading + Factor)–Limit
2. Factor= Antenna factor+Cable attenuation factor(cable loss)-Amplifier gain



Temperature:	23.3 ℃	Relative Humidity:	60%
Test Voltage:	DC 24V	Phase:	Horizontal
Test Mode:	Mode 2		

Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
98.1000	63.33	-20.46	42.87	68.00	-25.13	peak
98.1000	63.30	-20.46	42.84	48.00	-5.17	AVG
220.1200	50.31	-19.59	30.72	46.00	-15.28	peak
293.8400	48.07	-15.02	33.05	46.00	-12.95	peak
391.8100	43.06	-11.50	31.56	46.00	-14.44	peak
490.7500	40.47	-8.20	32.27	46.00	-13.73	peak
784.6600	25.00	-2.10	22.90	46.00	-23.10	peak

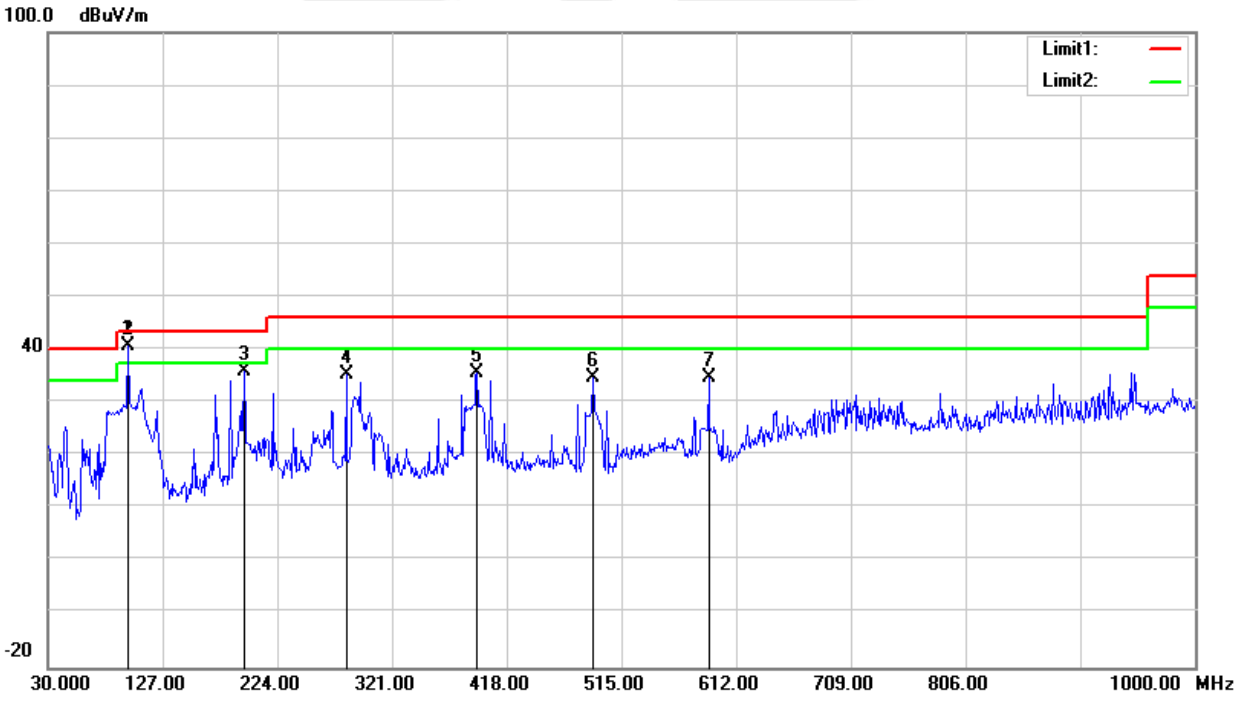
Remark:
1. Margin = Result (Result =Reading + Factor)–Limit
2. Factor= Antenna factor+Cable attenuation factor(cable loss)-Amplifier gain



Temperature:	23.3 ℃	Relative Humidity:	60%
Test Voltage:	DC 24V	Phase:	Vertical
Test Mode:	Mode 2		

Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
98.1000	61.12	-20.46	40.66	68.00	-27.34	peak
98.1000	61.07	-20.46	40.61	48.00	-7.39	AVG
195.8700	57.05	-21.14	35.91	43.50	-7.59	peak
282.2000	51.01	-15.53	35.48	46.00	-10.52	peak
392.7800	47.20	-11.46	35.74	46.00	-10.26	peak
490.7500	43.02	-8.20	34.82	46.00	-11.18	peak
588.7200	40.45	-5.81	34.64	46.00	-11.36	peak

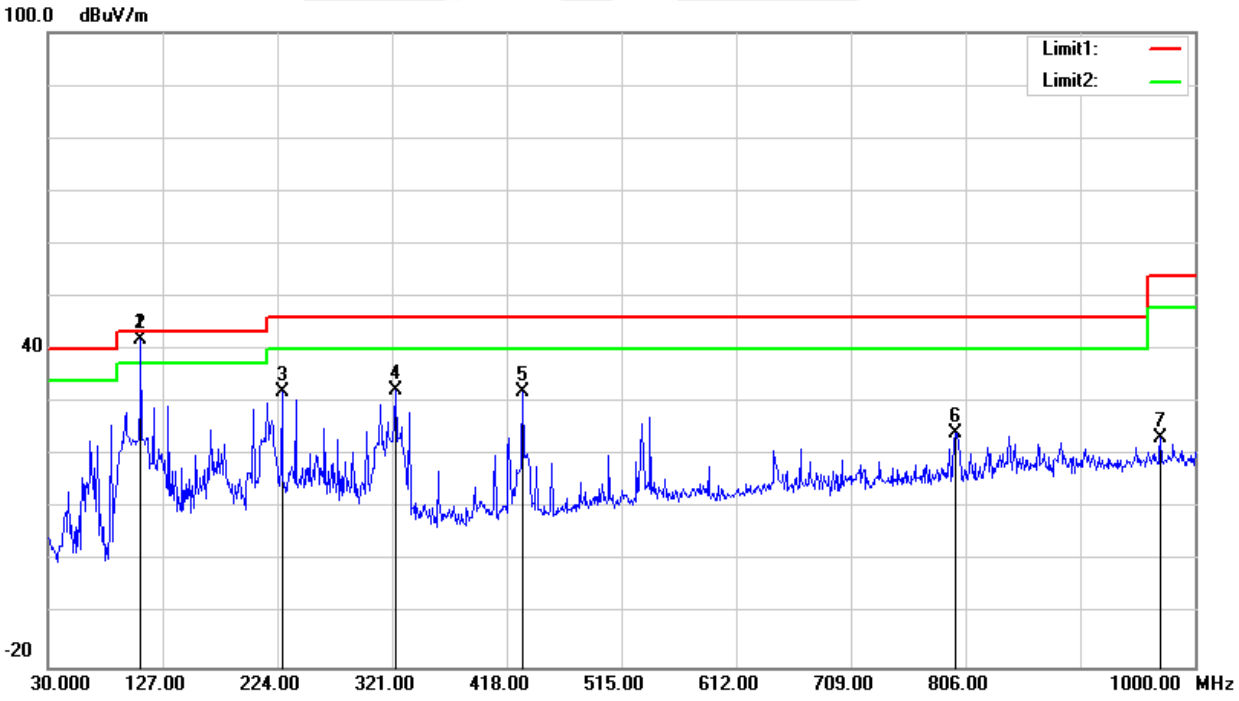
Remark:
1. Margin = Result (Result =Reading + Factor)–Limit
2. Factor= Antenna factor+Cable attenuation factor(cable loss)-Amplifier gain



Temperature:	23.3 ℃	Relative Humidity:	60%
Test Voltage:	DC 24V	Phase:	Horizontal
Test Mode:	Mode 3		

Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
107.9000	61.25	-19.22	42.03	68.00	-25.97	peak
107.9000	61.12	-19.22	41.90	48.00	-6.10	AVG
227.8800	51.36	-19.20	32.16	46.00	-13.84	peak
323.9100	46.33	-13.88	32.45	46.00	-13.55	peak
431.5800	42.26	-10.13	32.13	46.00	-13.87	peak
797.2700	26.18	-2.03	24.15	46.00	-21.85	peak
970.9000	21.31	2.06	23.37	54.00	-30.63	peak

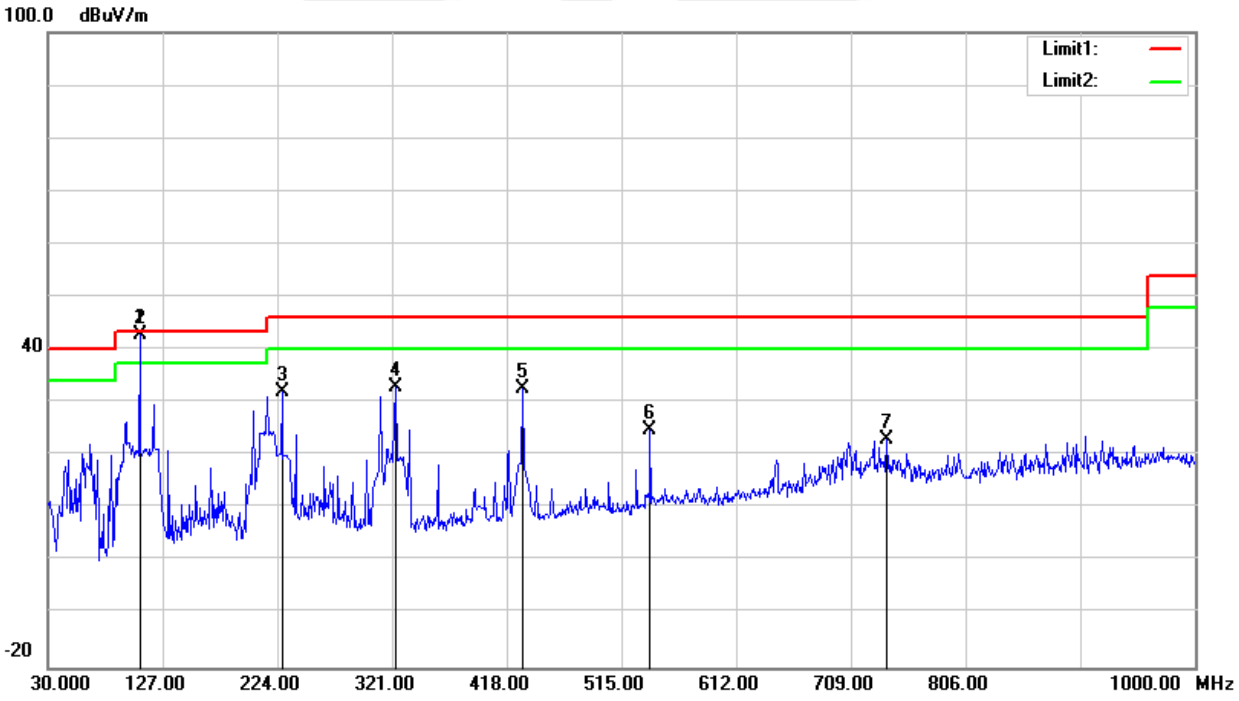
Remark:
1. Margin = Result (Result =Reading + Factor)–Limit
2. Factor= Antenna factor+Cable attenuation factor(cable loss)-Amplifier gain



Temperature:	23.3 ℃	Relative Humidity:	60%
Test Voltage:	DC 24V	Phase:	Vertical
Test Mode:	Mode 3		

Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
107.9000	62.14	-19.32	42.82	68.00	-25.18	peak
107.9000	62.10	-19.32	42.78	48.00	-5.22	AVG
227.8800	51.11	-19.20	31.91	46.00	-14.09	peak
323.9100	46.72	-13.88	32.84	46.00	-13.16	peak
431.5800	42.88	-10.13	32.75	46.00	-13.25	peak
539.2500	31.78	-6.90	24.88	46.00	-21.12	peak
739.0700	25.06	-2.15	22.91	46.00	-23.09	peak

Remark:
1. Margin = Result (Result =Reading + Factor)–Limit
2. Factor= Antenna factor+Cable attenuation factor(cable loss)-Amplifier gain



Above 1000MHz

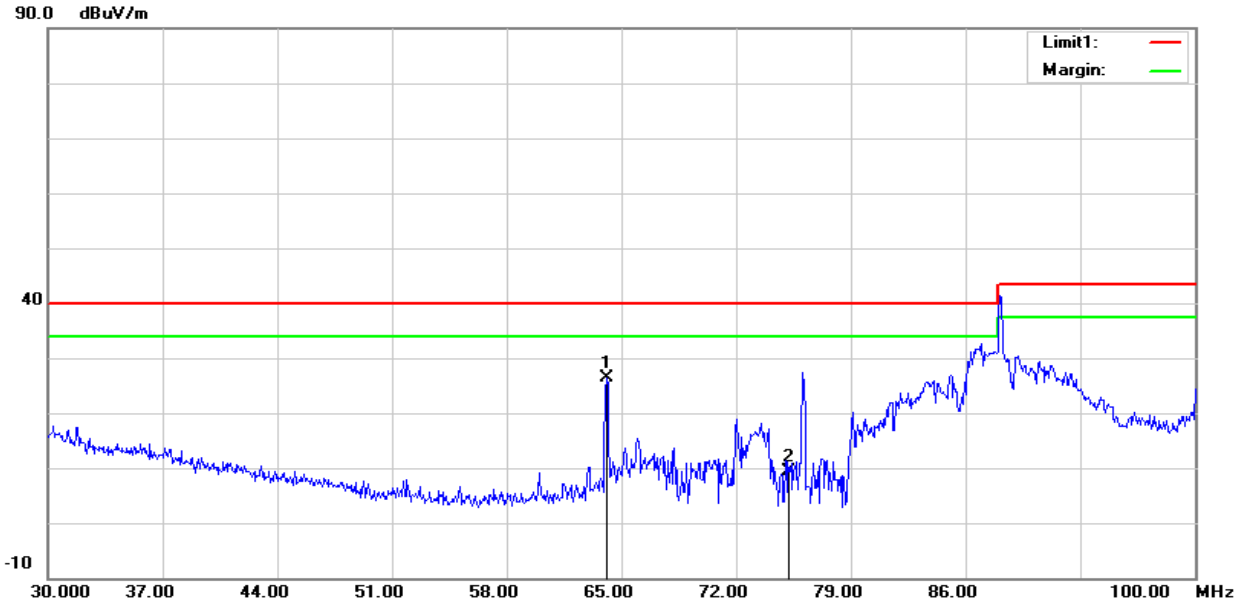
Frequency	Meter Reading	Amplifier	Loss	Antenna Factor	Orrected Factor	Emission Level	Limits	Margin	Detector	Comment
(MHz)	(dBμV)	（dB）	（dB）	（dB/m）	（dB）	(dBμV/m)	(dBμV/m)	(dB)	Type	
107.9MHz										
1010.79	55.25	46.30	3.70	24.30	-18.30	36.95	74	-37.05	Pk	Vertical
1010.79	44.45	46.30	3.70	24.30	-18.30	26.15	54	-27.85	AV	Vertical
1032.23	53.84	46.30	3.70	24.30	-18.30	35.54	74	-38.46	Pk	Horizontal
1032.23	45.56	46.30	3.70	24.30	-18.30	27.26	54	-26.74	AV	Horizontal
1043.83	56.32	44.90	3.70	24.30	-16.90	39.42	74	-34.58	Pk	Vertical
1043.83	48.25	44.90	3.70	24.30	-16.90	31.35	54	-22.65	AV	Vertical
1052.98	56.31	44.90	3.70	24.30	-16.90	39.41	74	-34.59	Pk	Horizontal
1052.98	48.33	44.90	3.70	24.30	-16.90	31.43	54	-22.57	AV	Horizontal
1079.42	55.74	44.10	3.70	24.30	-16.10	39.64	74	-34.36	Pk	Vertical
1079.42	46.54	44.10	3.70	24.30	-16.10	30.44	54	-23.56	AV	Vertical

Note:

1) Factor = Antenna Factor + Cable Loss – Pre-amplifier.
   Emission Level = Reading + Factor
2) The frequency emission of peak points that did not show above the forms are at least 20dB below the limit, the frequency emission is mainly from the environment noise.
3) The Low channel, Mid channel are at least 20dB below the limit, not shown in the report.

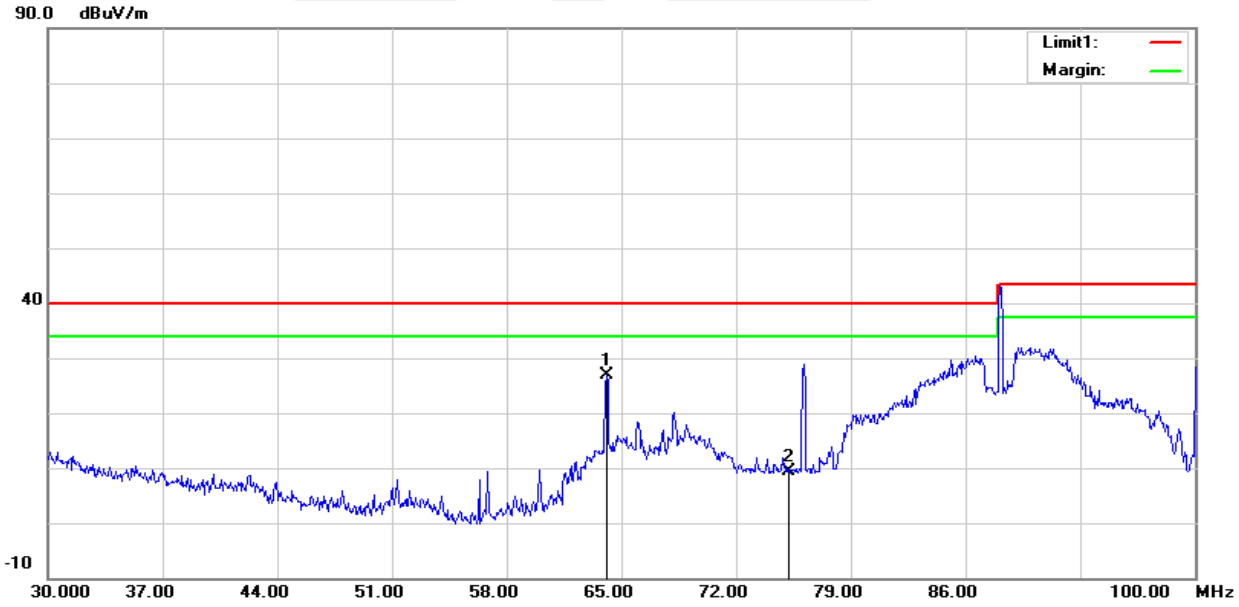
Restricted Bands

Low channel
Horizontal



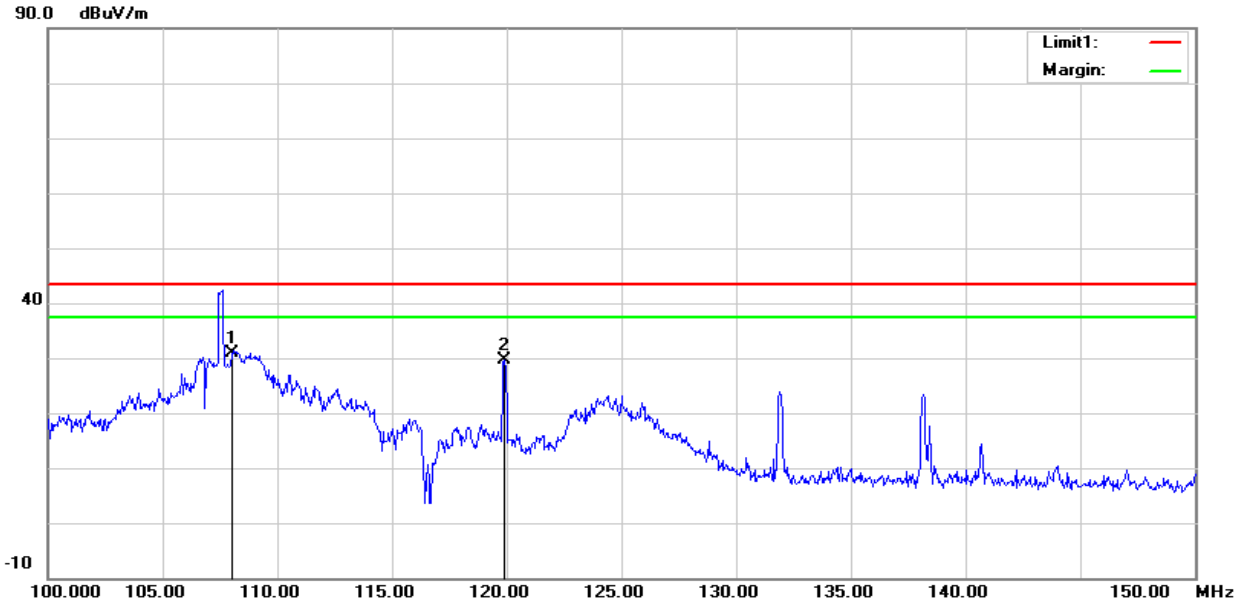
No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	64.0900	52.14	-25.64	26.50	40.00	-13.50	peak
2	75.2000	33.21	-23.86	9.35	40.00	-30.65	peak

Vertical



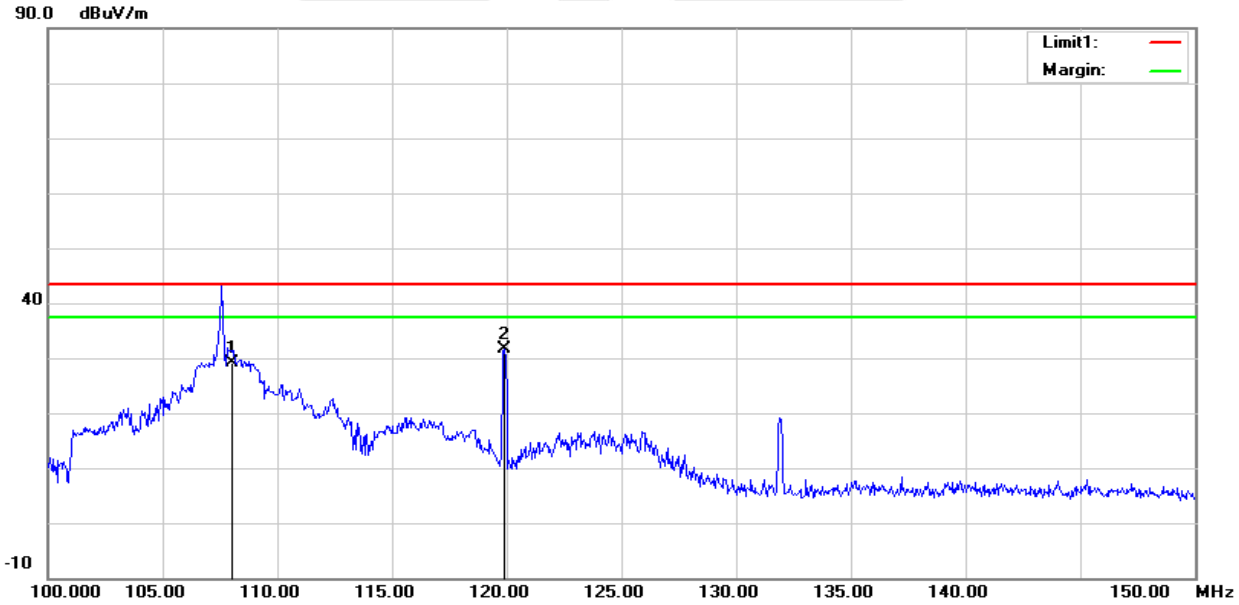
No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	64.0900	52.52	-25.64	26.88	40.00	-13.12	peak
2	75.2000	33.36	-23.86	9.50	40.00	-30.50	peak

High channel
Horizontal



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	108.0000	50.16	-19.28	30.88	43.50	-12.62	peak
2	119.9000	48.05	-18.35	29.70	43.50	-13.80	peak

Vertical



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	108.0000	48.30	-19.28	29.02	43.50	-14.48	peak
2	119.9000	50.08	-18.35	31.73	43.50	-11.77	peak

5. 20DB BANDWIDTH

5.1 LIMIT

Emissions from the intentional radiator shall be confined within a band 200 kHz wide centered on the operating frequency. The 200 kHz band shall lie wholly within the frequency range of 88-108 MHz.

5.2 TEST PROCEDURE

The occupied bandwidth shall be recorded as the 20 dB bandwidth and tested at the low, middle, and high channels, and it shall be wholly contained in the band 88 MHz to 108 MHz. For bandwidth measurements, a peak detector shall be used, except that a sample detector may be used when the modulating audio signal is of a digital audio encoding format.
Spectrum analyzer setting follwing below:
1. Set RBW = 1kHz.
2. Set the video Mobile Phonewidth (VBW) ≥ 3 RBW.
3. Detector = Peak.
4. Trace mode = max hold.
5. Sweep = auto couple.
6. Allow the trace to stabilize.
7.Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 d B relative to the maximum level measured in the fundamental emission.

5.3 TEST SETUP

5.4 EUT OPERATION CONDITIONS

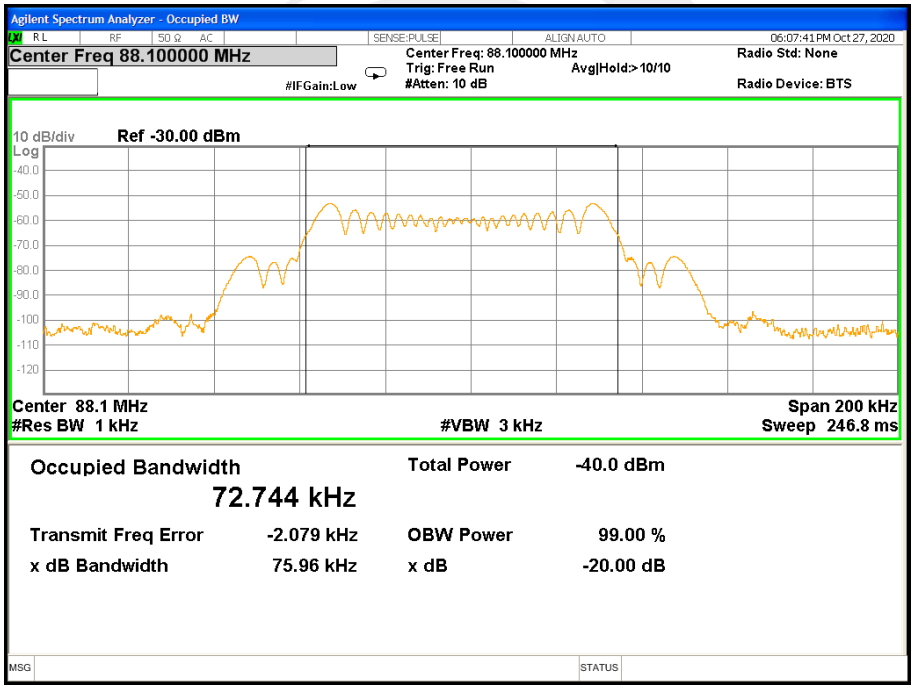
The EUT tested system was configured as the statements of 2.3 Unless otherwise a special operating condition is specified in the follows during the testing.

5.5 TEST RESULTS

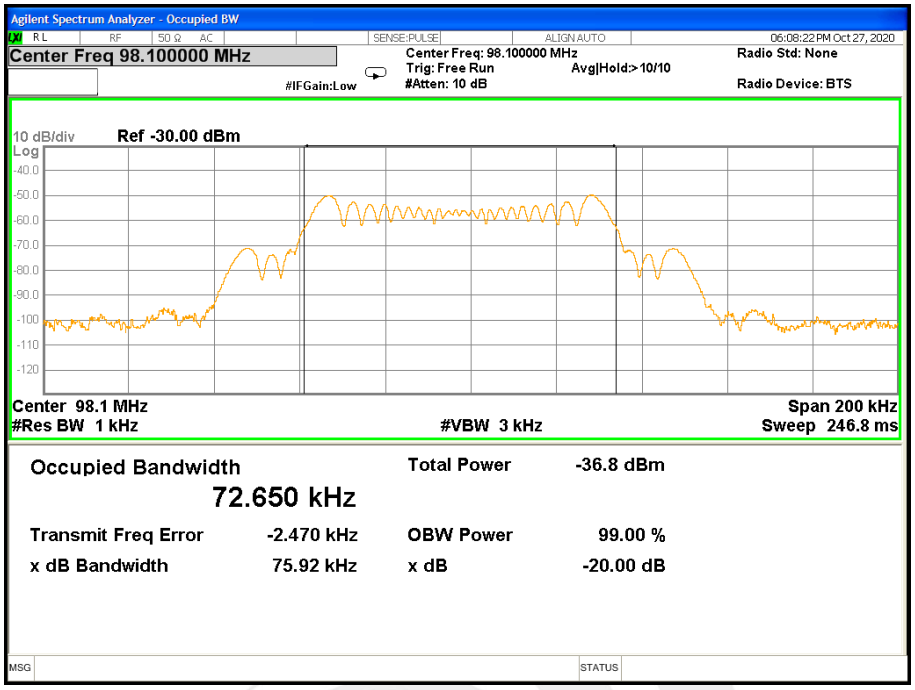
Temperature:	25 ℃	Relative Humidity:	60%
Test Voltage:	DC 24V	Test Mode:	TX Mode

Centre Frequency	Measurement	
	20dB Bandwidth (KHz)	Frequency Range (MHz)
88.10	75.96	88-108
98.10	75.92	88-108
107.90	75.96	88-108

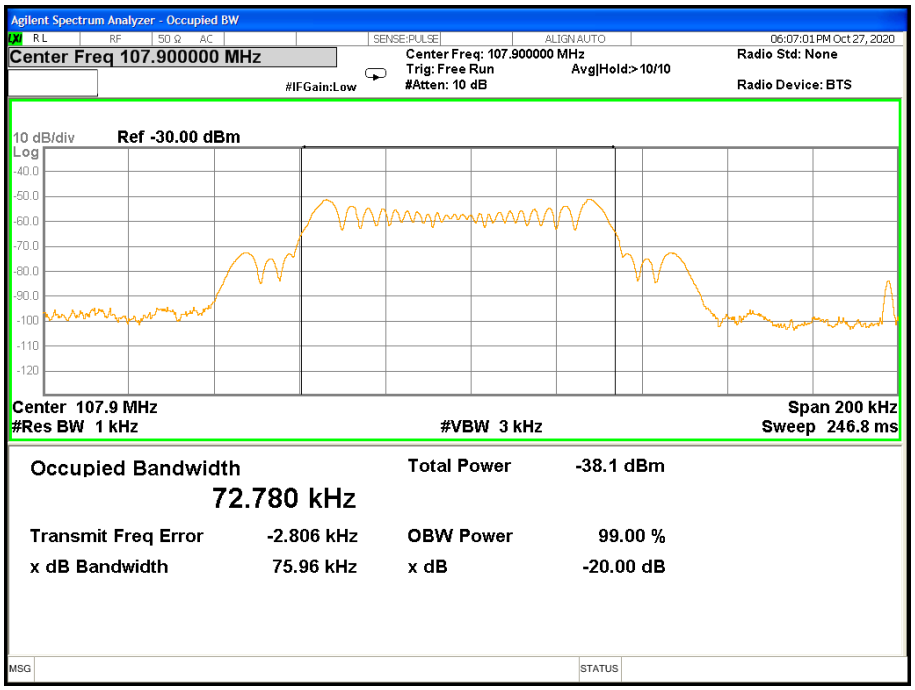
Low channel



Mid channel



High channel



6. ANTENNA REQUIREMENT

6.1 STANDARD REQUIREMENT

15.203 requirement: For intentional device, according to 15.203: an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.

6.2 EUT ANTENNA

The EUT antenna is Monopole Antenna. It comply with the standard requirement.

APPENDIX 1- PHOTOS OF TEST SETUP

Note: See test photos in setup photo document for the actual connections between Product and support equipment.

※※※※※END OF THE REPORT※※※※※