RF MEASUREMENT REPORT

CERIFICATION OF COMPLIANCE

PRODUCT	:	**TMA (Tower Mounted Amplifier)**
MODEL NAME	:	**TMA1900P**
FCC ID	:	**UPS-TMA1900P**
TRADE NAME	:	**VisionLink International**
APPLICANT	:	**VisionLink International Inc.**
FCC RULE PART	:	**FCC Part 2, Part 24**
FCC PROCEDURE	:	**Certification**
FCC CLASSIFICATION	:	**Amplifier (AMP)**
EMISSION DESIGNATOR	:	**GXW (GSM)**
FREQUENCY RANGE	:	**TX : 1930 MHz ~ 1990 MHz** **RX : 1850 MHz ~ 1910 MHz**
RF POWE	:	**54 dBm (250 Watts)**
DATES OF TEST	:	**September 13, 2006 ~ October 9, 2006**
DATES OF ISSUE	:	**October 23, 2006**
TEST REPORT NO.	:	**BWS-06-RF-0021**
TEST LAB.	:	**BWS TECH Inc. (Registration No. : 553281)**

This product has been tested in accordance with the measurement procedures specified CFR 47 Part 2.947 and ANSI C63.4-2003 at the BWS TECH/RF Test Laboratory and has been shown to be complied with the FCC Technical Specification described above.
I attest to the accuracy of data. All measurement herein were performed by me or were made under my supervision and are correct to the best of my knowledge and belief. I assume full responsibility for the completeness of these measurements and vouch for the qualifications of all persons taking them. The results of testing in this report apply to the product/system which was tested only. Other similar equipment will not necessarily produce the same results due to production tolerance and measurement uncertainties.

Prepared by :
Choi, Chang Young / Radio Engineer
BWS TECH INC.

Reviewed by:
Nam, Tae-hyun/Chief Engineer
BWS TECH INC.

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TABLE OF CONTENTS

RF TEST REPORT

Scope – Measurement and determination of radio frequency devices including intentional radiators and/or unintentional radiators for compliance with the technical rules and regulations of relevant international standard

1. General Information

Applicant Information

Company Name	:	**VisionLink International Inc.**
Company Address	:	**44875 Industrial Drive Suite Q, Fremont, CA, 94538,USA**
Phone / Fax	:	**+1-510-225-1547 / +1-510-226-6030**

Other Information

EUT Type	:	**TMA (Tower Mounted Amplifier)**
Model Name	:	**TMA1900P**
FCC Identifier	:	**UPS-TMA1900P**
Brand Name	:	**VisionLink International Inc.**
S/N	:	**ProtoType**
Freq. Range	:	**TX : 1930 MHz ~ 1990 MHz** **RX : 1850 MHz ~ 1910 MHz**
Max. Power	:	**54 dBm (250 Watts)**
Emission Designator	:	**GXW (GSM)**
FCC Classification	:	**Amplifier (AMP)**
Rule Part	:	**FCC Part 2, Part 24**
Test Procedure	:	**Certification**
Dates of Tests	:	**September 13, 2006 ~ October 9, 2006**
Place of Tests	:	**BWS TECH Inc.** **#611-1 Maesan-Ri, Mohyeon-Myeon, Cheoin-Gu, Yongin-Si, Gyeonggi-Do 449-853, Korea** **(FCC Registration Number : 553281)**
Test Report No.	:	**BWS-06-RF-0021**

2. DESCRIPTION OF ATTACHMENTS

Appendix 1. FCC ID Label and Location
-. Sample FCC ID Label and location information is shown

Appendix 2. Test Setup Photos
-. Radiated Emission Test setup photos are shown

Appendix 3. External Photos
-. External photos are shown

Appendix 4. Internal Photos
-. Internal photos are shown

Appendix 5. Block Diagram
-. The block diagram is shown

Appendix 6. Schematics
-. The circuit diagrams are shown

Appendix 7. Operational description
-. The operational description are shown.

Appendix 8. Part List
-. The part lists are shown.

Appendix 9. User Manual
-. The user operating manual is shown.

Appendix 10. RF Exposure statement
-. The RF exposure statement is shown.

3. INTRODUCTION

The measurement tests were conducted at the open area test site of BWS TECH Inc. facility located at #611-1 Maesan-Ri, Mohyeon-Myeon, Cheoin-Gu, Yongin-Si, Gyeonggi-Do 449-853, Korea.
The measurement facilities were constructed in conformance with the requirements of the ANSI C63.4-2003 and CISPR Publication 16. The BWS has site descriptions on file with the FCC for 3 and 10 meter site configurations. Detailed description of test facility was found to be in compliance with the requirements of Section 2.948 FCC Rules according to the ANSI C63.4-2003 and registered to the Federal Communications Commission(Registration Number : 553281).
All measurements contained in this application were conducted in accordance with FCC Rules and regulations CFR 47and American National Standard Method of Measurement of Radio-Noise Emission from Low-Voltage Electrical and Electronic Equipment in the Range of 9kHz to 40GHz (ANSI C.63.4-2003).

Measurement Procedure

The radiated and spurious measurements were made outdoors at a 3-meter test range.
The equipment under testing was placed on a wooden turntable, 3-meters from the receive antenna. The receive antenna height and turntable rotations was adjusted for the highest reading on the receive spectrum analyzer. A half-wave dipole was substituted in place of the EUT. This dipole antenna was driven by a signal generator and the level of the signal generator was adjusted to obtain the same receive spectrum analyzer reading. This level was recorded.
For readings above 1 GHZ, the above procedure would be repeated using horn antennas and the difference between the gain of the horn and an isotropic antenna are taken into consideration.

4. PRODUCT INFORMATION

4.1 Equipment Description

Mounted close the Macro site antenna, it improves the radio uplink performance and ensures a balanced link budget. VisionLink offers a wide range of TMAs for most cellular standards and all VisionLink TMAs are specified and verified to ensure optimum and problem-free performance in systems.
VisionLink TMA has been designed for installing on the base station and amplifying RX signal to base station. It improves received signal sensitivity and extends the base station's coverage. Also it minimize loss of transmitting signal and maximize the effectiveness for Tower Mounted Amplifier by optimizing power handling.

4.2 Technical Specification

Electrical Properties

No.	Parameters	Specifications		Remarks
		TX	RX	
1	Frequency Range	1930~1990 MHz	1850 ~ 1910 MHz	60MHz
2	Insert Loss	0.6 dB Max	-	Typical
3	Gain	-	12 dB ± 1.0 dB	Typical
4	Gain Drift Over Temperature	-	1.5 dB Max	-
5	Noise Figure	-	1.8 dB Max	Typical
6	Input 3rd Order Intercept Point	-	+12dBm Min	-
7	Intermodulation	-117 dBm Max	-	-
8	Return Loss (Input)	20.0 dB Min		-
9	Return Loss (Output)	20.0 dB Min		-
10	Max Tx Input Power	54 dBm		-
11	Impedance	50 Ω		-

Physical Properties

No.	Parameters	Specifications	Remarks
1	Operation Temp.	-35℃ ~ +55℃	-
2	Operation Humidity	5 ~ 95 %	-
3	Dimension (W x D x H) [inch]	9.724 x 8.504 x 3.465	Without Connector
4	Connector	7/16 Female	-
5	Sealing	IP 659	-
6	Mounting	Pole or Wall	-
7	MTBF	900,000 hour	-
8	Finish	DIC-201	-
9	Weight (㎏)	4.5 ㎏	-

4.3 Variations covered by this report

Model Difference : N/A

Technical Deviation : N/A

4.4 Additional information related to Testing

☑ **Note.**

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☑ **Note.**

Please refer to the duties and responsibilities of the Responsible Party attached.

5. TEST RESULTS

5.1 Summary of Test Results

The measurement results were obtained with the EUT tested in the conditions described in this report. Detailed measurement data and plots showing the maximum emission of the EUT are reported.

FCC Rules Section	Description	Test Result
Part 15.207	Power Line Conducted Spurious	☒ **Pass** ☐ Fail
Part 2.1046	RF Power Output	☒ **Pass** ☐ Fail
Part 2.1047	Modulation characteristics	N/A
Part 2.1049	Occupied Bandwidth	☒ **Pass** ☐ Fail
Part 2.1051	Spurious Emission at Antenna Terminal	☒ **Pass** ☐ Fail
Part 2.1053	Field Strength of Spurious Emission	☒ **Pass** ☐ Fail
Part 2.1055	Frequency Stability	N/A

The data collected shows that the product complies with technical requirements of the FCC Rule Part 2.947 and Part 24 related technical specification.

5.2 Modification to EUT

The device tested is not modified anything, mechanical or circuits to improve EMI status during a measurement. No EMI suppression device(s) was added and/or modified during testing.

6. TEST DATA

6.1 RF Power Output (Conducted)

6.1.1 Definition

The conducted carrier power output rating for a transmitter is the power available at the output terminals of the transmitter when the output terminals are connected to the standard transmitter load.

6.1.2 Specification

FCC Rules Part 2, Section 2.1046
FCC Rules Part 24 Subpart E, Section 24.232

6.1.3 Method of Measurement

ANSI/TIA-603-B-2002 Section 2.2.1

6.1.4 Measurement Set-Up

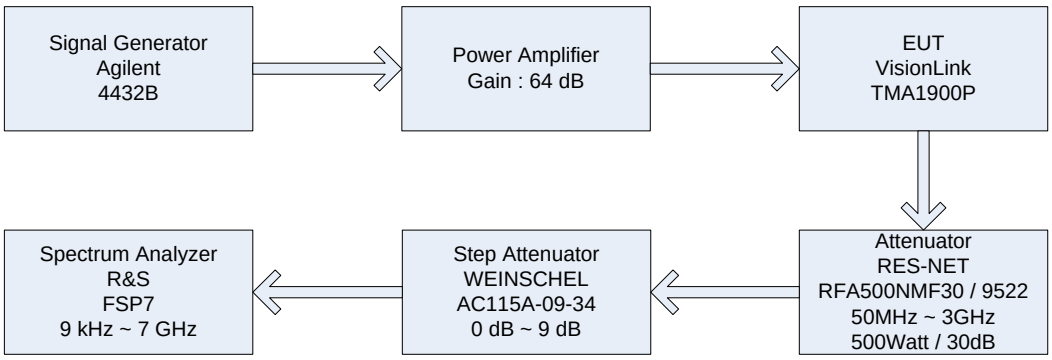


Fig-1

6.1.5 Test Equipment List

Equipment	Model Name	Manufacturer
EUT	TMA1900P	VisionLink
Signal Generator	E4432B	AGILENT
Spectrum Analyzer	FSP7	R&S
Attenuator	RFA500NMF30 / 9522	RES-NET
Step Attenuator	AC115A-09-34	WEINSCHEL
Power Amplifier	Non	Hyon Corp

6.1.6 Used Cable List

From	To	Type	Length
Signal Generator	Power Amplifier	Shielded	0.3 m
Power Amplifier	EUT	Shielded	1.0 m
EUT	Attenuator	Shielded	1.0 m
Attenuator	Step Attenuator	-	Direct
Step Attenuator	Spectrum Analyzer	Shielded	3.0 m

6.1.7 Test Condition

① Temperature : 26ºC
② Humidity : 50%RH

6.1.8 Test Procedure

① Connect the equipment as Fig-1.
② Measure the transmitter output power during the defined duty cycle.
Correct for all losses in the RF path.
③ The value recorded in step "②" is the conducted carrier output power rating.

6.1.9 Limit

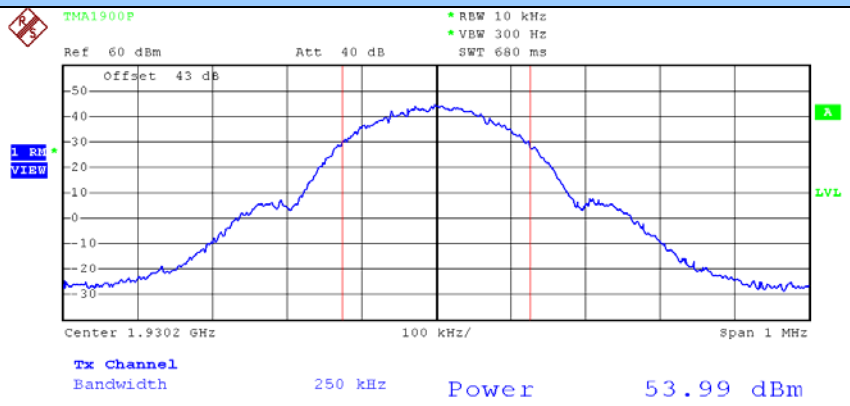
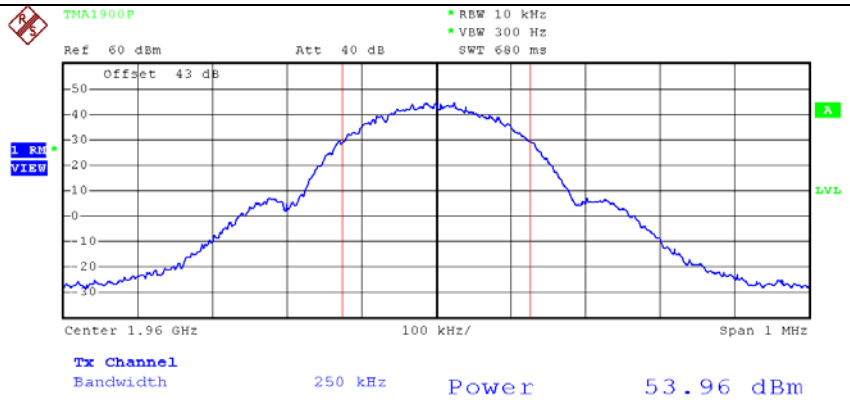
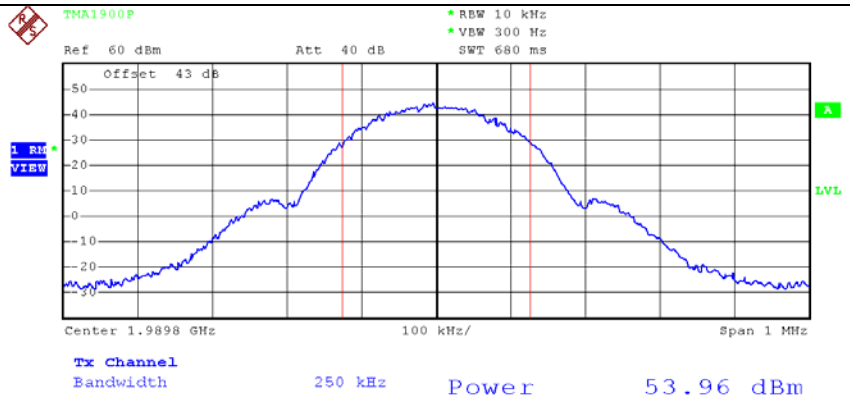
① 250 Watts

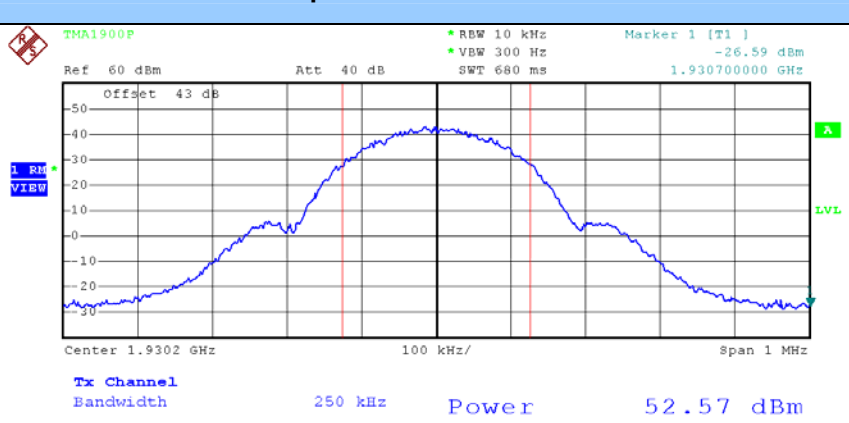
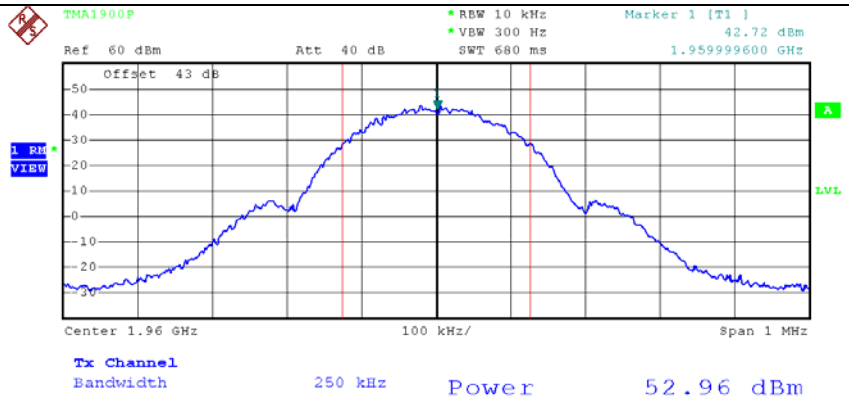
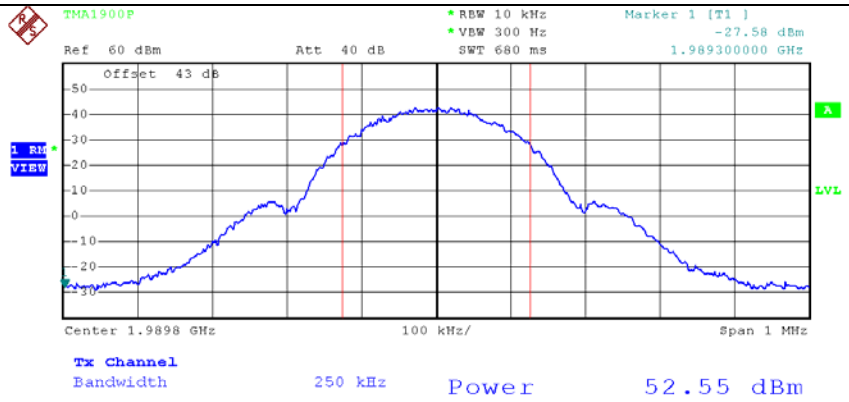
6.1.10 Test Result

Transmitter Channel Setting	Frequency Tuned (MHz)	Input Power (dBm)	**Output Power (dBm)**	**Rated Power (Watts)**
Low	1930.2	53.99	52.57	**180.7**
Mid	1960.0	53.96	52.96	**197.7**
High	1989.8	53.96	52.55	**179.9**

*Tested by **Choi, Chang Young***

6.1.11 Test Plot

Input Power	
Low Channel 1930.2 MHz 53.99 dBm	
Middle Channel 1960.0 MHz 53.96 dBm	
High Channel 1989.8 MHz 53.96 dBm	

Output Power	
Low Channel 1930.2 MHz 52.57 dBm	
Middle Channel 1960.0 MHz 52.96 dBm	
High Channel 1989.8 MHz 52.55 dBm	

6. TEST DATA

6.2 Occupied Bandwidth

6.2.1 Definition

The transmitter sideband spectrum denotes the sideband power produced at a discrete frequency separation from the carrier up to the test bandwidth due to all sources of unwanted noise within the transmitter in a modulated condition.

6.2.2 Specification

FCC Rules Part 2, Section 2.1049
FCC Rules Part 24 Subpart E, Section 24.238

6.2.3 Method of Measurement

ANSI/TIA-603-B-2002 Section 2.2.11

6.2.4 Measurement Set-Up

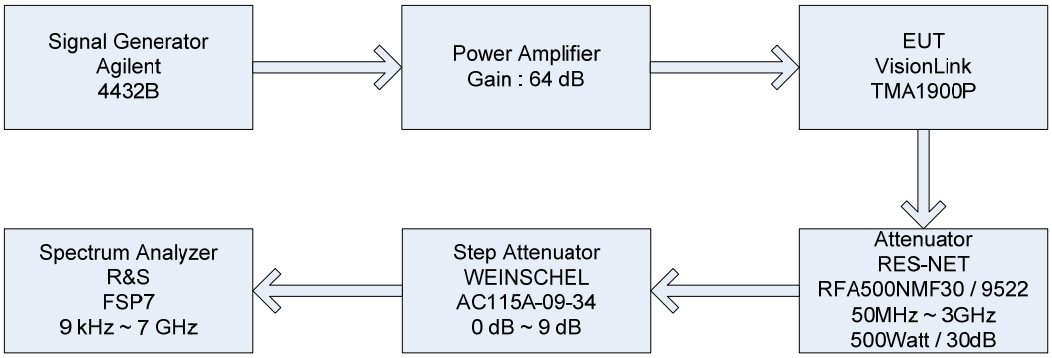


Fig-2

6.2.5 Test Equipment List

Equipment	Model Name	Manufacturer
EUT	TMA1900P	VisionLink
Signal Generator	E4432B	AGILENT
Spectrum Analyzer	FSP7	R&S
Attenuator	RFA500NMF30 / 9522	RES-NET
Step Attenuator	AC115A-09-34	WEINSCHEL
Power Amplifier	Non	Hyon Corp

6.2.6 Used Cable List

From	To	Type	Length
Signal Generator	Power Amplifier	Shielded	0.3 m
Power Amplifier	EUT	Shielded	1.0 m
EUT	Attenuator	Shielded	1.0 m
Attenuator	Step Attenuator	-	Direct
Step Attenuator	Spectrum Analyzer	Shielded	3.0 m

6.2.7 Test Condition

① Temperature : 26ºC
② Humidity : 50%RH

6.2.8 Test Procedure

① Connect the equipment as Fig-2.
② The test shall be performed using the modulation and transmitter keying of the EUT.
③ Alternatively, to perform this test the manufacturer shall provide access to the modulator and the transmitter key. An external test signal shall be applied to the EUT.
④ The test shall be carried out using standard modulation.

6.2.9 Limit

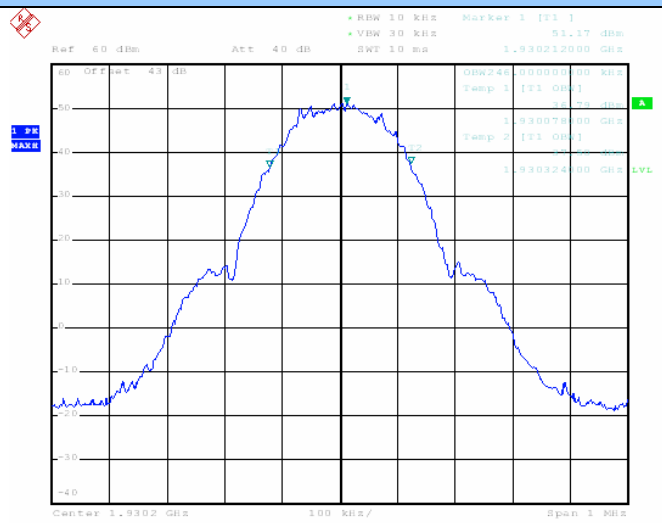
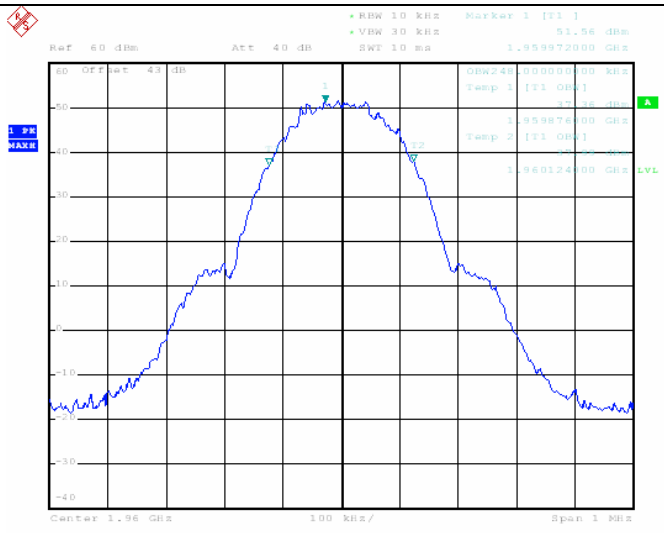
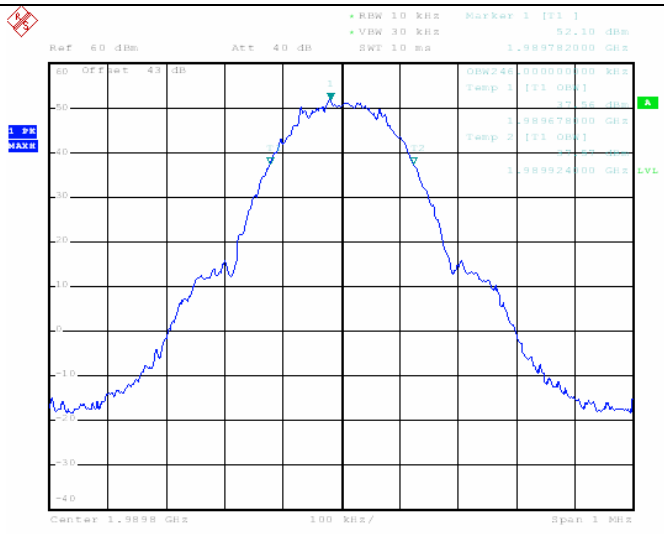
① 250 kHz

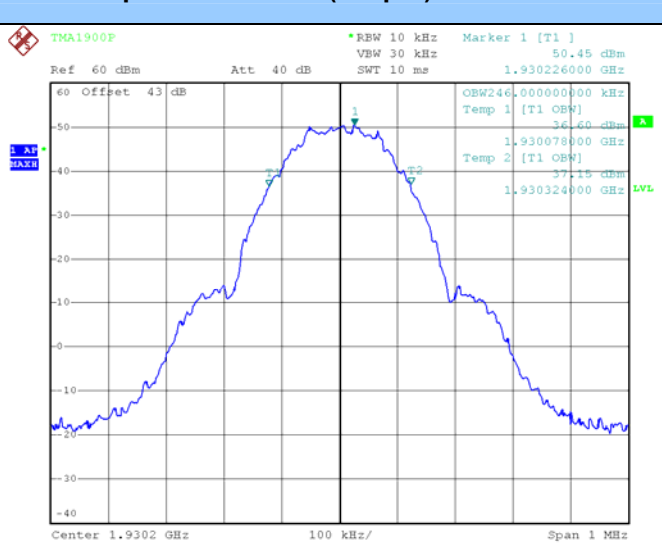
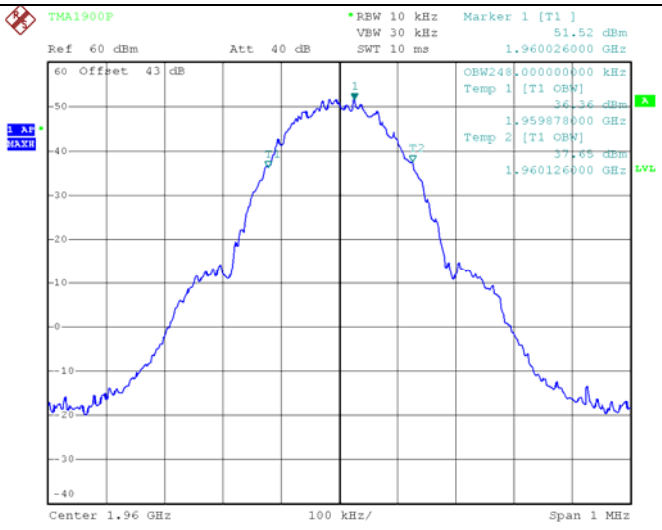
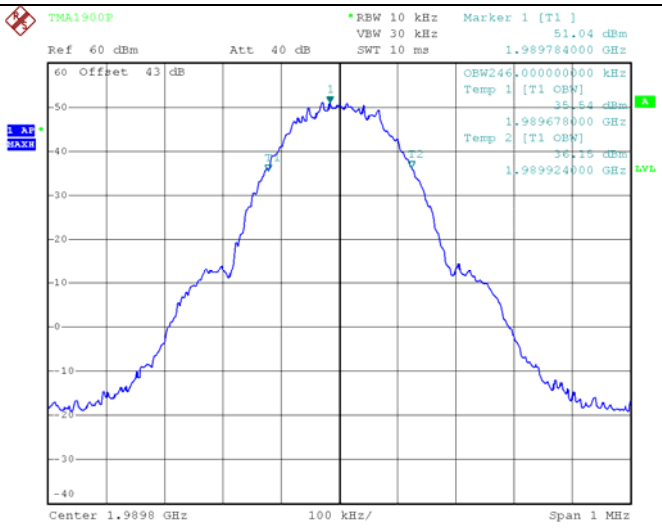
6.2.10 Test Result

Transmitter Channel Setting		Frequency Tuned (MHz)	Lower Point (kHz)	Upper Point (kHz)	Occupied Bandwidth (kHz)
Input	Low	1930.2	1930078.00	1930324.00	**246.0**
	Mid	1960.0	1959876.00	1960124.00	**248.0**
	High	1989.8	1989678.00	1989924.00	**246.0**
Output	Low	1930.2	1930078.00	1930324.00	**246.0**
	Mid	1960.0	1959878.00	1960126.00	**248.0**
	High	1989.8	1989678.00	1989924.00	**246.0**

Tested by ***Choi, Chang Young***

6.2.11 Test Plot

Occupied Bandwidth (Input)	
Low Channel 1930.2 MHz 246 kHz	
Middle Channel 1960.0 MHz 248 kHz	
High Channel 1989.8 MHz 246 kHz	

Occupied Bandwidth (Output)	
Low Channel 1930.2 MHz 246 kHz	
Middle Channel 1960.0 MHz 248 kHz	
High Channel 1989.8 MHz 246 kHz	

6. TEST DATA

6.3 Spurious Emission of Antenna Terminals

6.3.1 Definition

Conducted spurious emissions are emissions at the antenna terminals on a frequency or frequencies that are outside a band sufficient to ensure transmission of information of required quality for the class of communication desired.

6.3.2 Specification

FCC Rules Part 2, Section 2.1051
FCC Rules Part 24 Subpart E, Section 24.238

6.3.3 Method of Measurement

ANSI/TIA-603-B-2002 Section 2.2.13

6.3.4 Measurement Set-Up

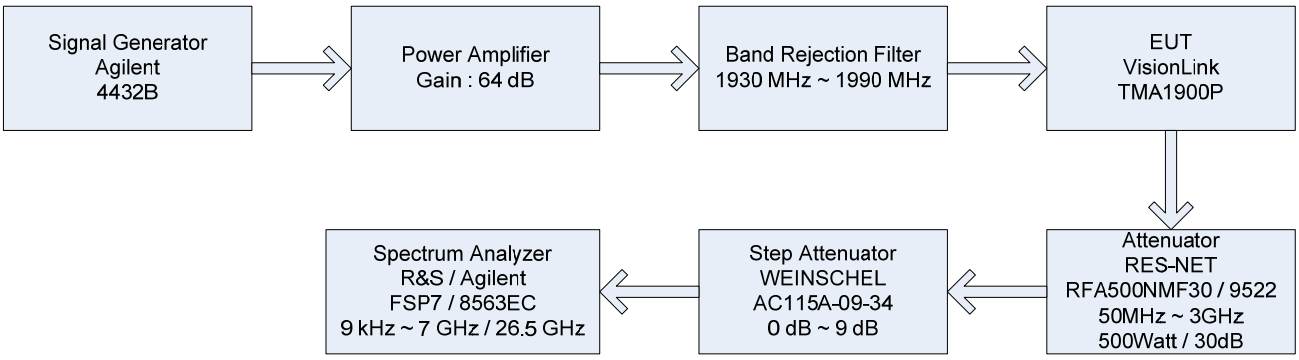


Fig-3

6.3.5 Test Equipment List

Equipment	Model Name	Manufacturer
EUT	TMA1900P	VisionLink
Signal Generator	E4432B	AGILENT
Spectrum Analyzer	FSP7	R&S
Attenuator	RFA500NMF30 / 9522	RES-NET
Step Attenuator	AC115A-09-34	WEINSCHEL
Band Rejection Filter	Non	Hyon Corp
Power Amplifier	Non	Hyon Corp

6.3.6 Used Cable List

From	To	Type	Length
Signal Generator	Power Amplifier	Shielded	0.3 m
Power Amplifier	Band Rejection Filter	Shielded	1.0 m
Band Rejection Filter	EUT	-	Direct
EUT	Attenuator	Shielded	1.0 m
Attenuator	Step Attenuator	-	Direct
Step Attenuator	Spectrum Analyzer	Shielded	3.0 m

6.3.7 Test Condition

① Temperature : 26ºC
② Humidity : 50%RH

6.3.8 Test Procedure

① Connect the equipment as Fig-3, with the filter by-passed.
② Set the center frequency of the spectrum analyzer to the assigned transmitter frequency, key the transmitter, and set the level of the carrier to the full scale reference line.
③ Adjust the center frequency of the spectrum analyzer for incremental coverage of the range from:
- The lowest radio frequency generated in the equipment to the carrier frequency minus the test bandwidth.
- The carrier frequency plus the test bandwidth to a frequency less than 2 times the carrier frequency.

④ Record the frequencies and levels of spurious emissions from step "③".

6.3.9 Limit

① 43 + 10 log (P) dBc
= 53.97 dBc
= -13 dBm

6.3.10 Test Result

Band Edge Level			Limit (dBm)
Frequency	1930.4 MHz	1989.6 MHz	-13
Level	≪ -13 dBm *	≪ -13 dBm *	

* This emissions level is below 20dB to limit.

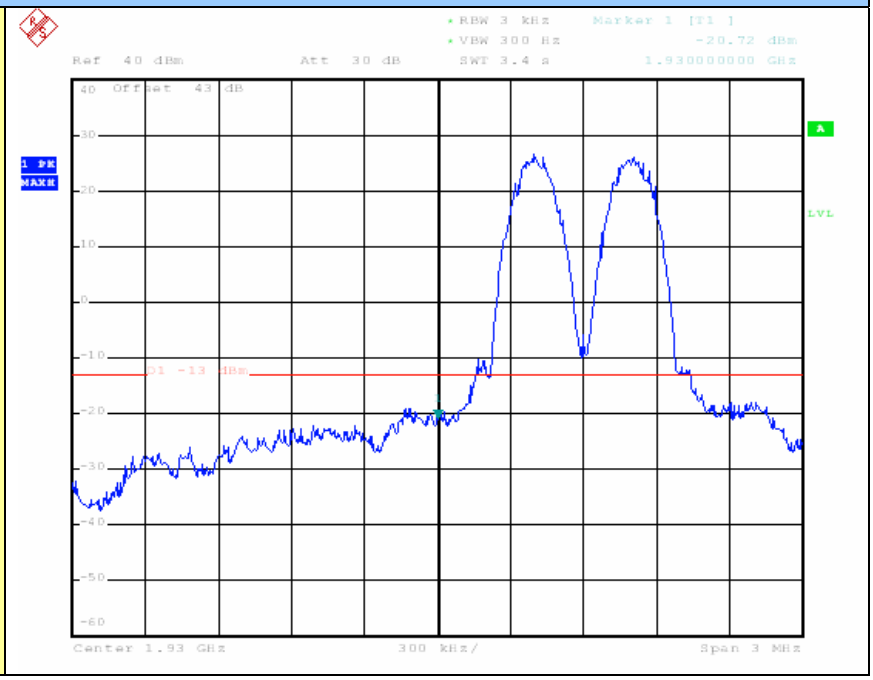
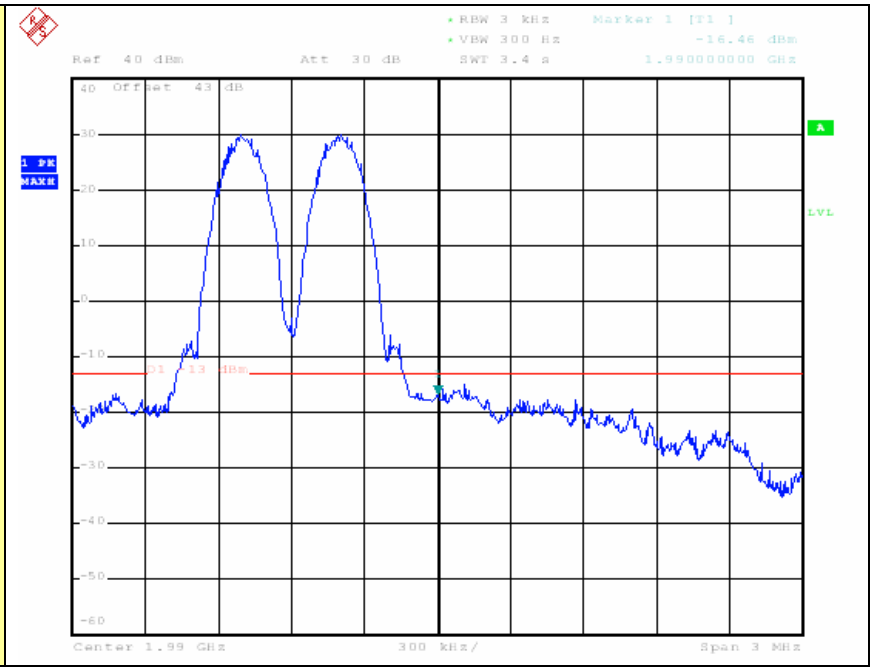
Frequency	Frequency Range				Limit (dBm)
	9kHz ≤ f_0 < 150kHz	150kHz ≤ f_0 < 30MHz	30MHz ≤ f_0 < 1GHz	1GHz ≤ f_0 < 26.5GHz	
1960 MHz	≪ -13 dBm *	-23.93 dBm	-14.44 dBm	-14.96 dBm	-13

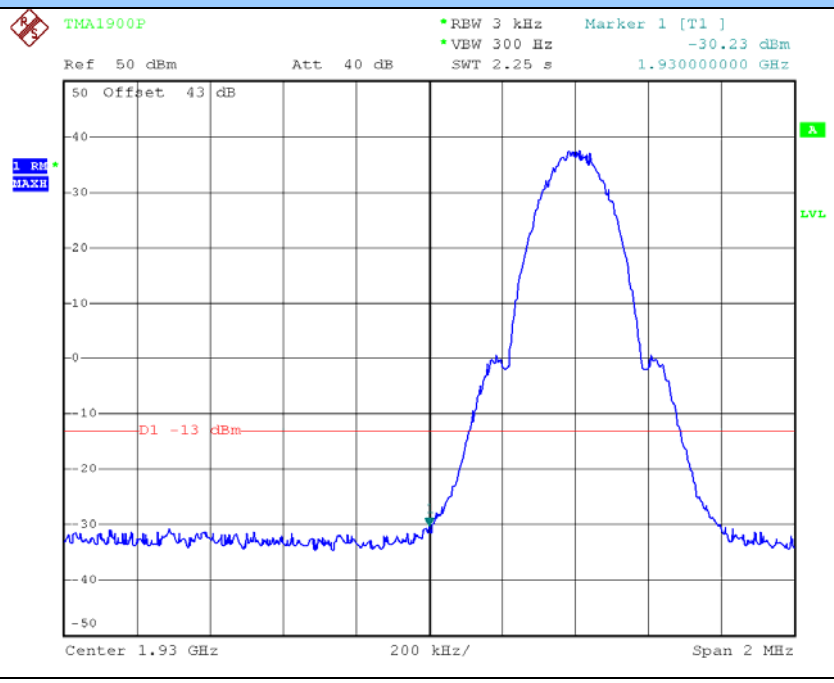
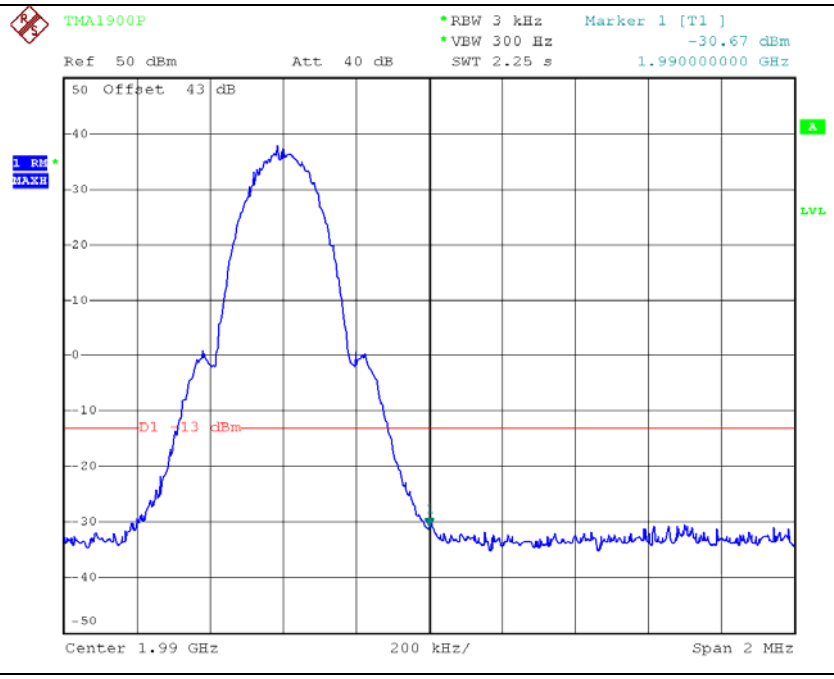
* This emissions level is below 20dB to limit.

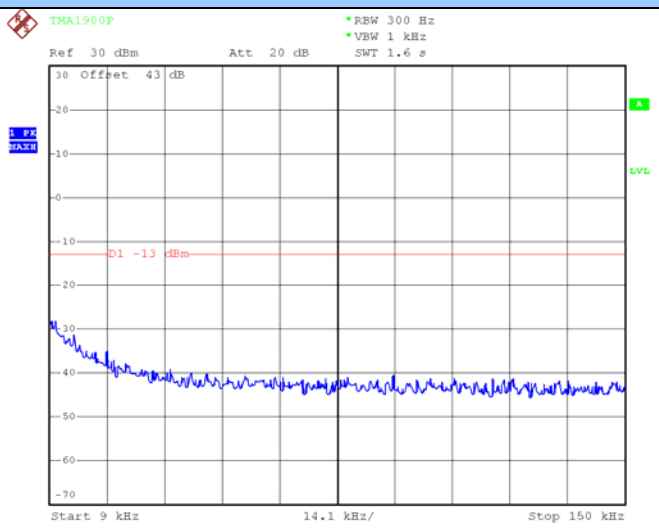
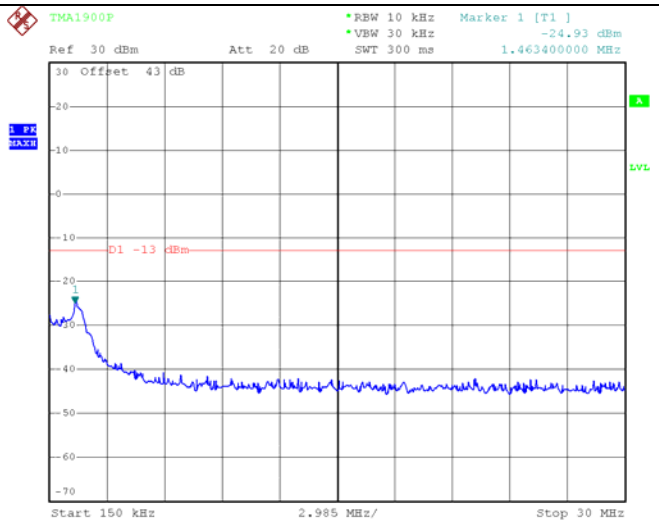
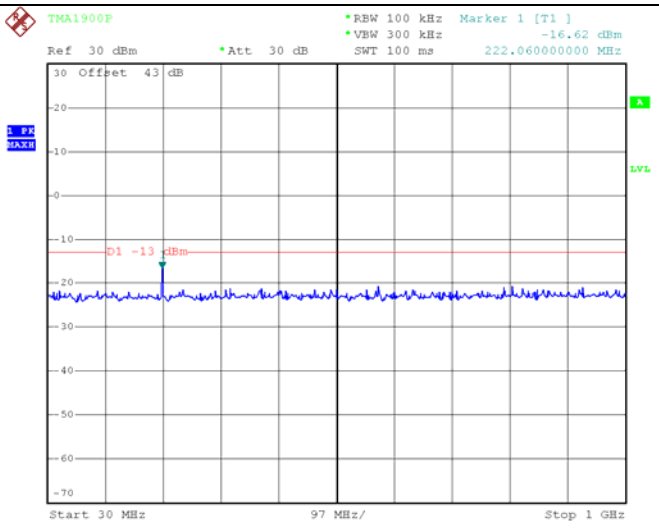
Frequency (MHz)	Operating Frequency (1960 MHz)			Limit (dBm)
	RBW	VBW	Spurious Level	
1.463	10 kHz	30 kHz	-24.93 dBm	-13
221.8	100 kHz	300 kHz	-14.44 dBm	
1201.8	1 MHz	3 MHz	-15.18 dBm	
1849.0	1 MHz	3 MHz	-14.96 dBm	
1991.6	1 MHz	3 MHz	-19.60 dBm	
2181.8	1 MHz	3 MHz	-20.37 dBm	
2847.3	1 MHz	3 MHz	-20.66 dBm	
5880.0	1 MHz	3 MHz	-19.31 dBm	

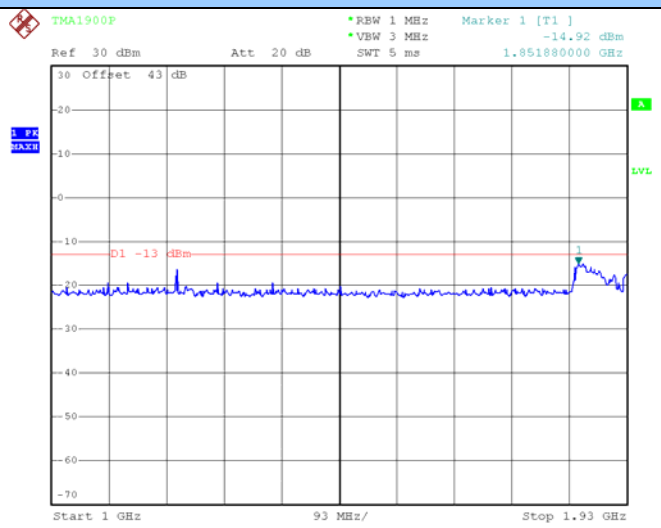
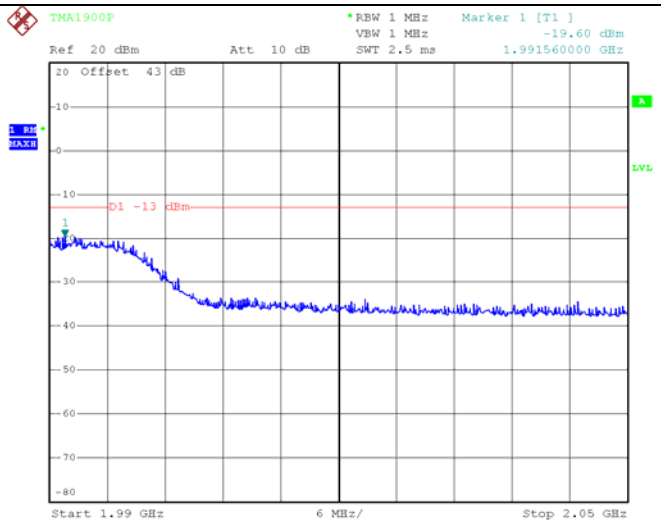
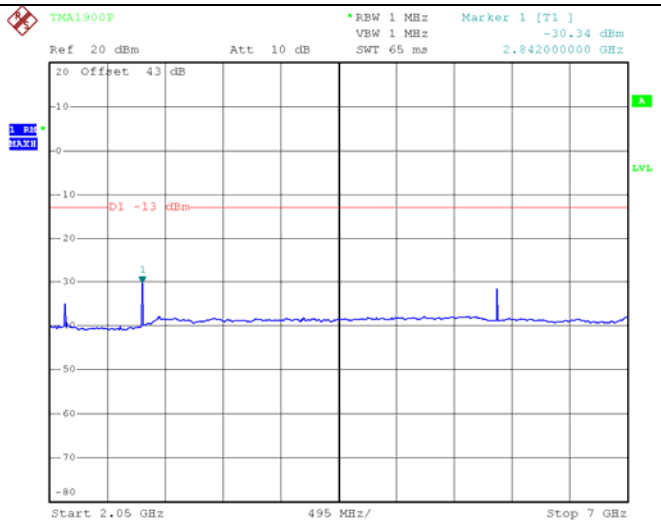
*Tested by **Choi, Chang Young***

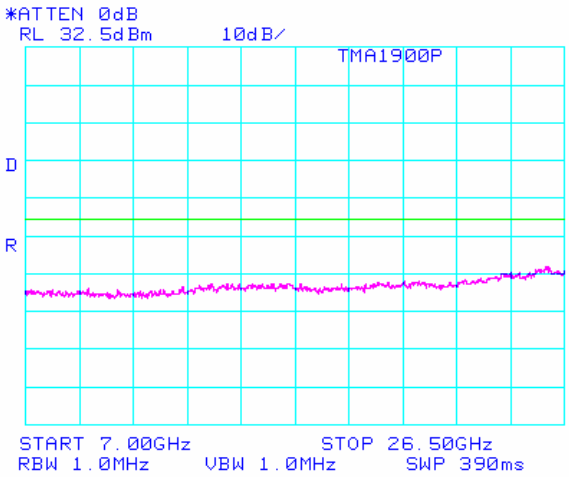
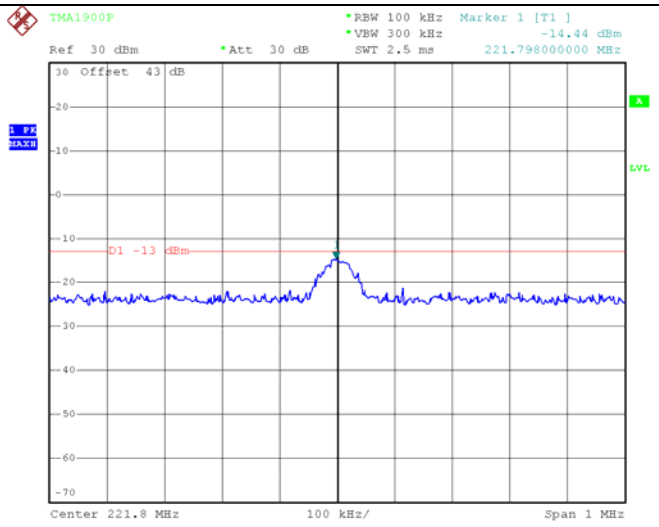
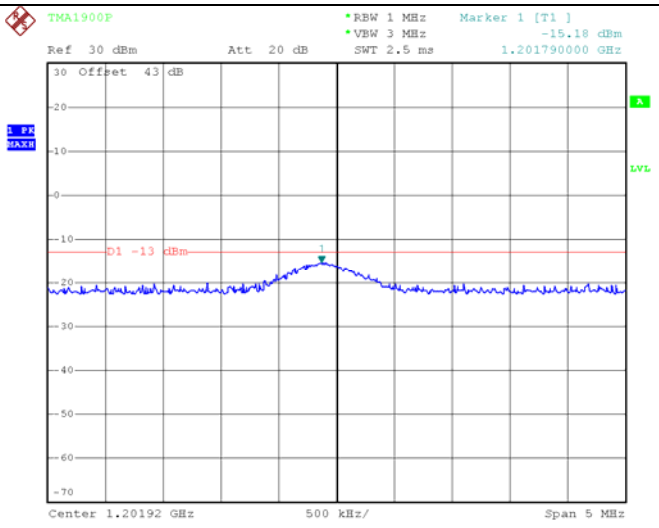
6.3.11 Test Plot

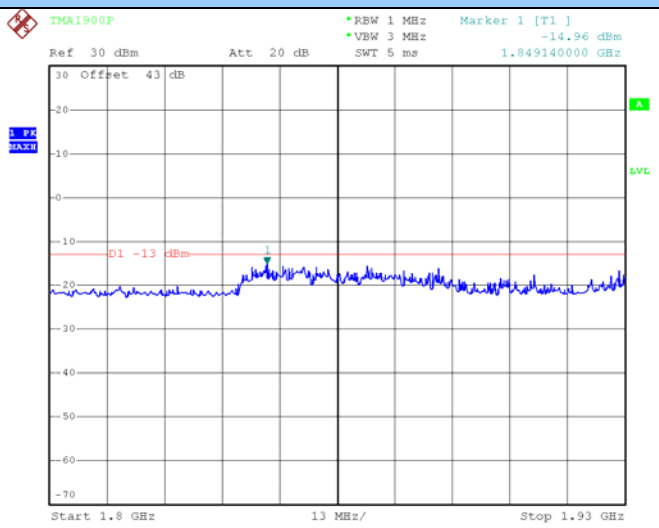
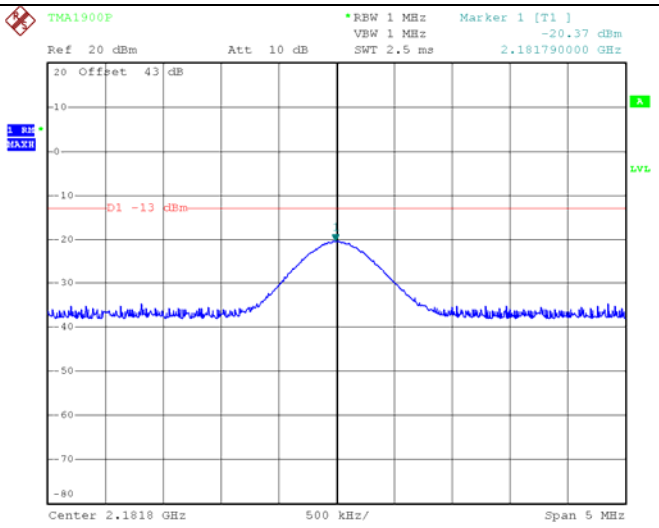
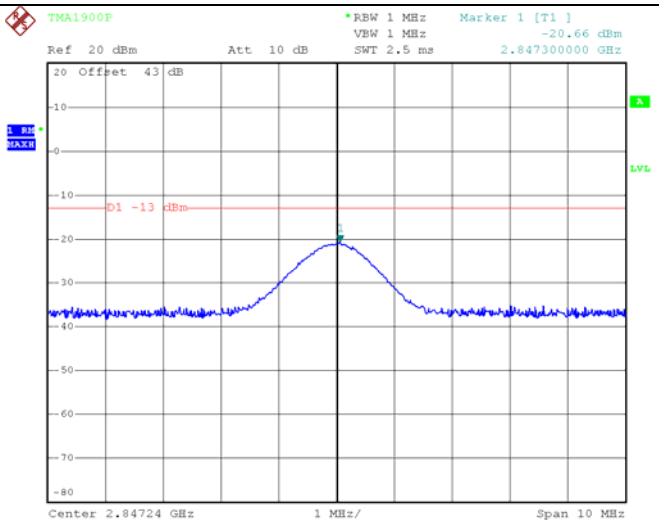
IMD	
1930.4 MHz + 1930.8 MHz	
1989.2 MHz + 1989.6 MHz	

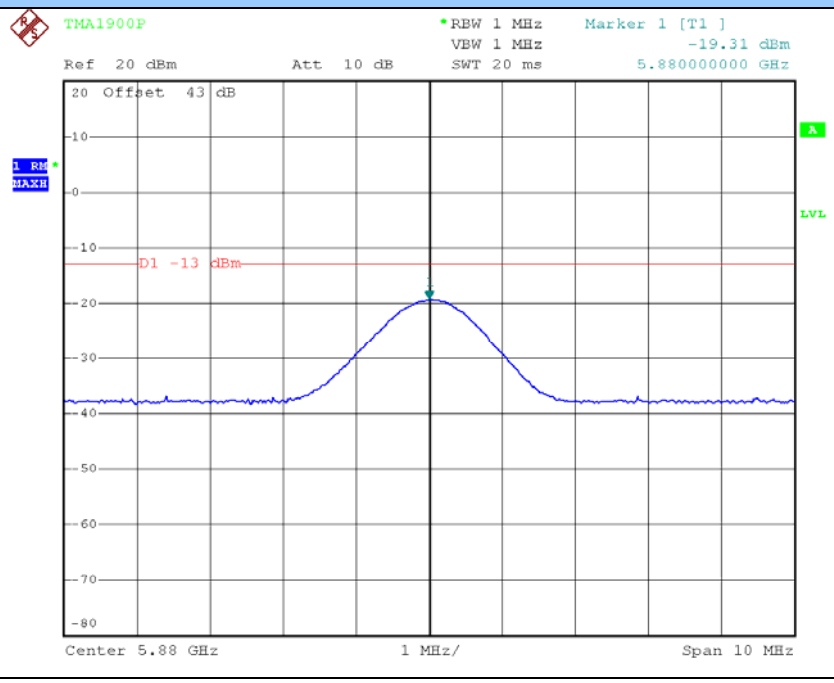
Band Edge	
1930.4 MHz Channel 513	
1989.6 MHz Channel 809	

Operating Frequency : 1960 MHz	
9 kHz ~ 150 kHz RBW : 300 Hz VBW : 1 kHz	
150 kHz ~ 30 MHz RBW : 10 kHz VBW : 30 kHz	
30 MHz ~ 1 GHz RBW : 100 kHz VBW : 300 kHz	

Operating Frequency : 1960 MHz	
1 GHz ~ 1.93 GHz RBW : 1 MHz VBW : 3 MHz	
1.99 GHz ~ 2.05 GHz RBW : 1 MHz VBW : 3 MHz	
2.05 GHz ~ 7 GHz RBW : 1 MHz VBW : 3 MHz	

Operating Frequency : 1960 MHz	
7 GHz ~ 26.5 GHz RBW : 1 MHz VBW : 1 MHz	
222 MHz RBW : 100 kHz VBW : 300 kHz	
1202 MHz RBW : 1 MHz VBW : 3 MHz	

Operating Frequency : 1960 MHz	
1849 MHz RBW : 1 MHz VBW : 3 MHz	
2182 MHz RBW : 1 MHz VBW : 3 MHz	
2847 MHz RBW : 1 MHz VBW : 3 MHz	

Operating Frequency : 1960 MHz	
5880 MHz **RBW : 1 MHz** **VBW : 3 MHz**	

6. TEST DATA

6.4 Field Strength of Spurious Emission

6.4.1 Definition

Radiated spurious emissions are emissions from the equipment when transmitting into a nonradiating load on a frequency or frequencies that are outside an occupied band sufficient to ensure transmission of information of required quality for the class of communications desired.

6.4.2 Specification

FCC Rules Part 2, Section 2.1053
FCC Rules Part 24 Subpart E, Section 24.238

6.4.3 Method of Measurement

ANSI/TIA-603-B-2002 Section 2.2.12

6.4.4 Measurement Set-Up

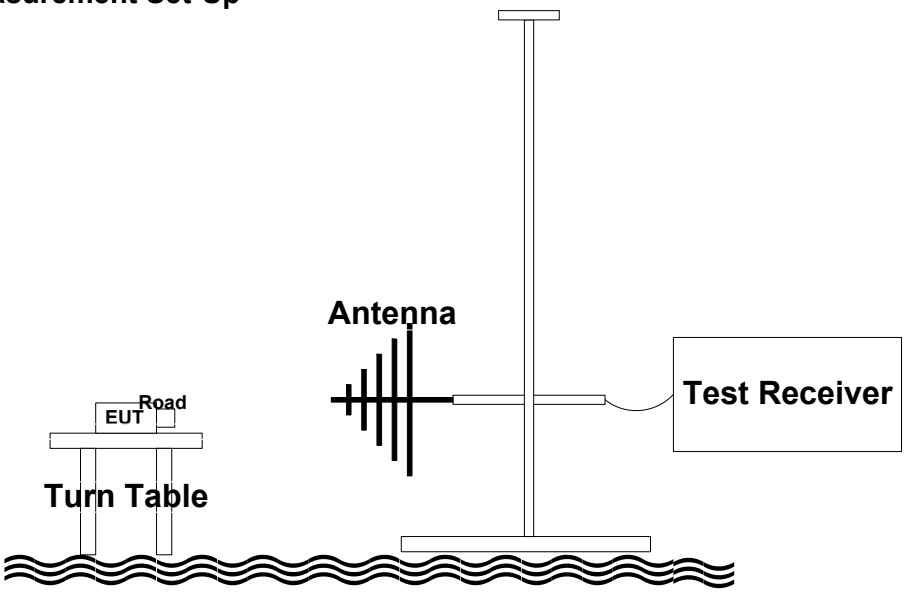


Fig-4.1

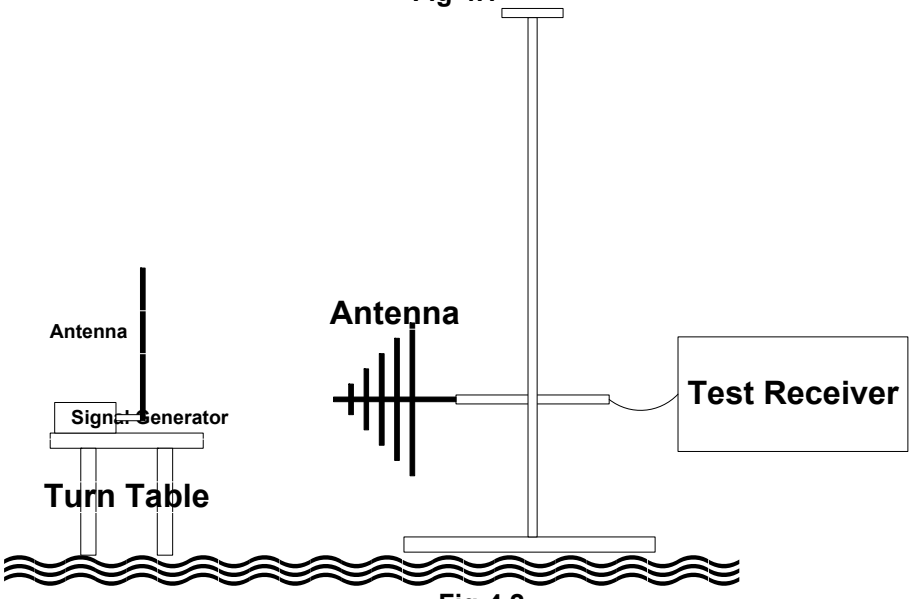


Fig-4.2

6.4.5 Test Equipment List

Equipment	Model Name	Manufacturer
EUT	TMA1900P	VisionLink
Signal Generator	E4432B	AGILENT
Termination	8173	BIRD
Biconical Antenna	VHA9103(BBA9106)	SWALZBECK
Log Periodic Antenna	UPA6109	SCHAFFNER
Horn Antenna	BBHA 9120 D	SWALZBECK
Receiver	ESVS 10	ROHDE & SCHWARZ
Band Rejection Filter	Non	Hyon Corp
Power Amplifier	Non	Hyon Corp

6.4.6 Test Procedure

① Connect the equipment as Fig-4-1.
② Place the transmitter to be tested on the turntable in the standard test site
③ The transmitter is transmitting into a non-radiating load that is placed on the turntable. The RF cable to this load should be of minimum length. For transmitters with integral antennas, the tests are to be run with the unit operating into the integral antenna.
④ For each spurious measurement the test antenna should be adjusted to the correct length for the frequency involved. This length may be determined from a calibration ruler supplied with the equipment. Measurements shall be made from the lowest radio frequency generated in the equipment to the tenth harmonic of the carrier, except for the region close to the carrier equal to ± the test bandwidth.
⑤ Key the transmitter.
⑥ For each spurious frequency, raise and lower the test antenna from 1 m to 4m to obtain a maximum reading on the spectrum analyzer with the test antenna at horizontal polarity. Then the turntable should be rotated 360° to determine the maximum reading. Repeat this procedure to obtain the highest possible reading. Record this maximum reading.
⑦ Repeat step "⑥" for each spurious frequency with the test antenna polarized vertically.
⑧ Reconnect the equipment as Fig-4.2.
⑨ Remove the transmitter and replace it with a substitution antenna (the antenna should be half-wavelength for each frequency involved). The center of the substitution antenna should be approximately at the same location as the center of the transmitter. At the lower frequencies, where the substitution antenna is very long, this will be impossible to achieve when the antenna is polarized vertically. In such case the lower end of the antenna should be 0.3 m above the ground.
⑩ Feed the substitution antenna at the transmitter end with a signal generator connected to the antenna by means of a nonradiating cable. With the antennas at both ends horizontally polarized, and with the signal generator tuned to a particular spurious frequency, raise and lower the test antenna to obtain a maximum reading at the spectrum analyzer. Adjust the level of the signal generator output until the previously recorded maximum reading for this set of conditions is obtained. This should be done carefully repeating the adjustment of the test antenna and generator output.
⑪ Repeat step "⑩" with both antennas vertically polarized for each spurious frequency.
⑫ Calculate power in dBm into a reference ideal half-wave dipole antenna by reducing the readings obtained in steps "⑩" and "⑪" by the power loss in the cable between the generator and the antenna, and further corrected for the gain of the substitution antenna used relative to an ideal half-wave dipole antenna by the following formula :

Pd(dBm) = Pg(dBm) – cable loss (dB) + antenna gain (dB)

where: Pd is the dipole equivalent power and
Pg is the generator output power into the substitution antenna.

6.4.7 Limit

① 43 + 10 log (P) dBc, 53.97 dBc, -13 dBm

6.5.6 Test Result

6.5.6.1. Test Data

Frequency (MHz)	Operating Frequency (1960 MHz)			Limit (dBm)
	RBW	VBW	Spurious Level	
221.8	120 kHz	300 kHz	-20.9 dBm	-13
1201.8	1 MHz	3 MHz	-20.5 dBm	
1849.0	1 MHz	3 MHz	-19.2 dBm	
1991.6	1 MHz	3 MHz	-24.6 dBm	
2181.8	1 MHz	3 MHz	≪ -13 dBm *	
2847.3	1 MHz	3 MHz	≪ -13 dBm *	
5880.0	1 MHz	3 MHz	≪ -13 dBm *	

* This emissions level is below 20dB to limit.

Tested by ***Choi, Chang Young***

7. TEST EQUIPMENT LIST

List of Test Equipments Used for Measurements

EQUIPMENT	MODEL	MANUFACTURE	SERIAL NUMBER	Calibration Due date
EMI Receiver	ESVS 10	Rohde&Schwarz	863247/019	11.15.2006
EMI Receiver	ESH3	Rohde&Schwarz	892580/014	12.16.2006
EMC Analyzer	E7403A	AGILENT	US39150108	06.02.2007
Loop Antenna	HFH2-Z2	Rohde&Schwarz	881056/6	08.22.2007
Dipole Antenna	VHAP / UHAP	SCHWARZBECK	810/533	04.24.2007
Dipole Antenna	VHAP / UHAP	SCHWARZBECK	811/534	04.24.2007
Horn Antenna	BBHA 9120 D	SCHWARZBECK	BBHA 9170	02.07.2007
Horn Antenna	BBHA 9170	SCHWARZBECK	BBHA 9120D	05.03.2007
Horn Antenna	3115	ETS•LINDGREN	00055005	02.07.2007
Biconical Antenna	VHA9103(BBA9106)	SCHWARZBECK	D-6901	01.23.2007
Log Periodic Antenna	UPA6109	SCHAFFNER	1076	01.23.2007
Bilog Antenna	VULB 9160	SCHWARZBECK	9160-3052	04.24.2007
Bilog Antenna	CBL6140A	CHASE	1144	03.06.2007
Amplifier	8447E	AGILENT	2805A02893	12.12.2006
Amplifier	8449B	AGILENT	3008A00809	02.24.2007
Antenna Mast	JAC-3	DAIL EMC	N/A	N/A
Turntable Controller	JAC-2	JAEMC	N/A	N/A
Open Site Cable	OSC-30	N/A	BWS-01	N/A
Signal Generator	E4432B	AGILENT	US40053157	07.15.2007
Signal Generator	GT9000	GIGATRONICS	9604010	02.22.2007
Frequency Counter	R5372	ADVANTEST	41855204	02.27.2007
Power Meter	E4418A	AGILENT	GB38272621	02.22.2007
Power Sensor	8485D	AGILENT	3318A04607	11.25.2006
Spectrum Analyzer	FSP7	Rohde&Schwarz	100001	02.22.2007
Spectrum Analyzer	8594E	AGILENT	3911A08040	11.14.2006
Modulation Analyzer	8901B	AGILENT	3028A03124	02.23.2007
Audio Analyzer	8903B	AGILENT	3011A09344	02.22.2007
Dual directional coupler	772D	AGILENT	2839A00395	11.14.2006
Dual directional coupler	778D	AGILENT	1144A08477	11.07.2006
Termination	8173	BIRD	2501	N/A
Termination	6515.19.A	SUHNER	-	N/A
Termination	M1426	WEINSCHEL	AX8888	N/A
Attenuator	33-30-33	WEINSCHEL	116594	02.24.2007
Oscilloscope	TDS3032	Tektronix	B081558	10.28.2006
Attenuator	RFA500NMF30	BIRD	9522	11.14.2006
LISN	FCC-LISN-50-50-2-02	FCC	03074	11.02.2006
Signal Analyzer	PMM9000	PMM	3100570602	09.22.2007
Artificial Main Network	KNW-242C	KYORITSU	8-920-20	09.09.2007
Artificial Main Network	L3-25	PMM	1110K70403	09.09.2007
LISN multiline	L1-115	Com-Power	241017	11.11.2006
LISN multiline	L1-115	Com-Power	241018	11.02.2006