

FCC PART 22/24/27 TEST REPORT**FCC Part 22H / Part 24E**

Report Reference No.....: LCS200414095AEH

FCC ID.....: 2ATS6-M5

Date of Issue.....: June 01, 2020

Testing Laboratory Name.....: Shenzhen LCS Compliance Testing Laboratory Ltd.

Address.....: 101, 201 Bldg A & 301 Bldg C, Juji Industrial Park Shajing Street,
Baoan District, Shenzhen, China

Applicant's name.....: Smartech,C.A..

Address.....: Manongo Avenue with Palma Real Street,C.C.Via Veneto,Milan
Level,M32 Local,Valencia Carabobo Venezuela

Test specification.....:

Standard.....: **FCC Part 22H: Cellular Radiotelephone Service**
FCC Part 24E: Broadband PCS

Test Report Form No: LCSEMC-1.0

TRF Originator.....: Shenzhen LCS Compliance Testing Laboratory Ltd.

Master TRF.....: Dated 2011-03

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Test item description.....: **Smartphone**

Trade Mark.....: Win

Test Model.....: M5

Adapter parameter:
Ratings.....: Input: AC 100-240V, 50/60Hz, 0.3A Max
Output: DC 5.0V/1A

Hardware version.....: H301N-MB-V1

Software version: /

Frequency: UMTS Band II / UMTS Band V

Result.....: **PASS**

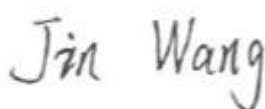
Compiled by:

Supervised by:

Approved by:



Jack Liu / File administrators



Jin Wang / Technique principal



Gavin Liang/ Manager

TEST REPORT

Test Report No. :	LCS200414095AEH	June 01, 2020
		Date of issue

Equipment under Test : Smartphone

Test Model : M5

Applicant : **Smartech,C.A..**

Address : Manongo Avenue with Palma Real Street,C.C.Via Veneto,Milan
Level,M32 Local,Valencia Carabobo Venezuela

Manufacturer : **Shen Zhen Cheng Fong Digital-Tech Limited**

Address : Building A,WeiHua Industrial Area, Huaxing road, Dalang,
Longhua, Shen Zhen, China

Factory : **Shen Zhen Cheng Fong Digital-Tech Limited**

Address : Building A,WeiHua Industrial Area, Huaxing road, Dalang,
Longhua, Shen Zhen, China

Test Result:	PASS
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The test report merely corresponds to the test sample.

It is not permitted to copy extracts of these test result without the written permission of the test laboratory.

Revision History

Revision	Issue Date	Revisions	Revised By
000	June 01, 2020	Initial Issue	Gavin Liang

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1 TEST STANDARDS

The tests were performed according to following standards:

[FCC Part 22H](#): Cellular Radiotelephone Service.

[FCC Part 24E](#): Broadband PCS.

[TIA-603-E March 2016](#): Land Mobile FM or PM Communications Equipment Measurement and Performance Standards.

[47 CFR FCC Part 15 Subpart B](#): Unintentional Radiators.

[FCC Part 2](#): Frequency Allocations And Radio Treaty Matters; General Rules And Regulations.

[ANSI C63.4:2014](#): Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz.

[FCC KDB971168 D01](#) Power Meas License Digital Systems v03r01

2 SUMMARY

2.1 General Remarks

Date of receipt of test sample	: April 30, 2020
Testing commenced on	: May 06, 2020
Testing concluded on	: May 30, 2020

2.2 Product Description

The **Smartech,C.A.** 's Model: or the "EUT" as referred to in this report; more general information as follows, for more details, refer to the user's manual of the EUT.

EUT	: Smartphone
Test Model	: M5
Power Supply	: Adapter parameter: Input: AC 100-240V, 50/60Hz, 0.3A Max Output: DC 5.0V/1A
Hardware Version	: H301N-MB-V1
Software Version	:
2G	:
Support Band	: ☒ GSM 900 (EU-Band) ☒ DCS 1800 (EU-Band) ☒ GSM 850 (U.S.-Band) ☒ PCS 1900 (U.S.-Band)
Release Version	: R99
GPRS Class	: Class 12
EGPRS Class	: Class 12
Type Of Modulation	: GMSK for GSM/GPRS; 8PSK for EGPRS
Antenna Description	: PIFA Antenna; 1.0dBi (max.) For GSM 850; 1.2dBi (max.) For PCS 1900.
3G	:
Support Band	: ☒ WCDMA Band II (U.S.-Band) ☒ WCDMA Band V (U.S.-Band) ☐ WCDMA Band IV (U.S.-Band) ☐ WCDMA Band I (EU-Band) ☒ WCDMA Band VIII (EU-Band)
Release Version	: R8
Type Of Modulation	: WCDMA: QPSK; HSDPA/HSUPA: QPSK
Antenna Description	: PIFA Antenna; 1.2dBi (max.) For WCDMA Band II; 1.0dBi (max.) For WCDMA Band V
LTE	:
Support Band	: ☒ E-UTRA Band 4(U.S.-Band)
LTE Release Version	: R13
Type Of Modulation	: QPSK/16QAM
Antenna Description	: PIFA Antenna; 1.1dBi (max.) For E-UTRA Band 4.
Power Class	: Class 3

Bluetooth	:
Frequency Range	: 2402MHz ~ 2480MHz
Channel Number	: 79 channels for Bluetooth V4.0 (BDR/EDR) 40 channels for Bluetooth V4.0 (BT LE)
Channel Spacing	: 1MHz for Bluetooth V4.0 (BDR/EDR) 2MHz for Bluetooth V4.0 (BT LE)
Modulation Type	: GFSK, $\pi/4$ -DQPSK, 8-DPSK for Bluetooth V4.0 (BDR/EDR) GFSK for Bluetooth V4.0 (BT LE)
Bluetooth Version	: V4.0
Antenna Description	: PIFA Antenna, 1.2dBi(Max.)

WIFI(2.4G Band)	:
Frequency Range	: 2412MHz ~ 2462MHz
Channel Spacing	: 5MHz
Channel Number	: 11 Channel for 20MHz bandwidth(2412~2462MHz) 9 channels for 40MHz bandwidth(2422~2452MHz)
Modulation Type	: 802.11b: DSSS; 802.11g/n: OFDM
Antenna Description	: PIFA Antenna, 1.2dBi(Max.)

WIFI(5.2G Band)	:
Frequency Range	: 5180MHz ~ 5240MHz
Channel Number	: 4 channels for 20MHz bandwidth(5180-5240MHz) 2 channels for 40MHz bandwidth(5190~5230MHz) 1 channels for 80MHz bandwidth(5210MHz)
Modulation Type	: 802.11a/n/ac: OFDM (256QAM,64QAM, 16QAM, QPSK, BPSK)

SRD(5.8G Band)	:
Frequency Range	: 5745MHz ~ 5825MHz
Channel Number	: 5 channels for 20MHz bandwidth(5745-5825MHz) 2 channels for 40MHz bandwidth(5755~5795MHz)
Modulation Type	: 802.11a/n/ac: OFDM (256QAM,64QAM, 16QAM, QPSK, BPSK)
Antenna Description	: PIFA Antenna, 1.2dBi(Max.)

GPS Receiver	:
Receive Frequency	: 1575.42MHz
Channel Number	: 1
Antenna Description	: PIFA Antenna,1.5dBi(Max.)

FM	:
Frequency Range	: 87.5MHz~108MHz
Antenna Description	: Intergral Antenna

2.3 Equipment under Test

Power supply system utilised

Power supply voltage	:	☐ 120V / 60 Hz	☐ 115V / 60Hz
		☐ 12 V DC	☐ 24 V DC
		☒ Other (specified in blank below)	

DC 3.85V

Test frequency list

Test Mode	TX/RX	RF Channel		
		Low(L)	Middle (M)	High (H)
WCDMA Band V	TX	Channel 4132	Channel 4182	Channel 4233
		826.4 MHz	836.4 MHz	846.6 MHz
	RX	Channel 4357	Channel 4407	Channel 4458
		871.4 MHz	881.4 MHz	891.6 MHz
Test Mode	TX/RX	RF Channel		
		Low(L)	Middle (M)	High (H)
WCDMA Band II	TX	Channel 9262	Channel 9400	Channel 9538
		1852.4 MHz	1880.0 MHz	1907.6 MHz
	RX	Channel 9662	Channel 9800	Channel 9938
		1932.4 MHz	1960.0 MHz	1987.6 MHz

2.4 Short description of the Equipment under Test (EUT)**2.4.1 General Description**

Smartphone is subscriber equipment in the GSM/ WCDMA/ LTE system. GSM/GPRS/EGPRS frequency band is Band I/II/V/VIII. The HSPA/UMTS frequency band is Band II/V/VIII. LTE frequency band is band 4. The HSPA/UMTS frequency band II and Band V test data included in this report. The Smartphone implements such functions as RF signal receiving/transmitting, GSM/GPRS/EGPRS/ HSPA/UMTS/LTE protocol processing, video MMS service and etc. Externally it provides SIM card interface.

2.5 Normal Accessory setting

N/A

2.6 EUT configuration

The following peripheral devices and interface cables were connected during the measurement:

● - supplied by the manufacturer

○ - supplied by the lab

○	Power Cable	Length (m) :	/
		Shield :	/
		Detachable :	/
○	Multimeter	Manufacturer :	/
		Model No. :	/

2.7 Related Submittal(s) / Grant (s)

This submittal(s) (test report) is intended for **FCC ID: 2ATS6-M5** filing to comply with FCC Part 22H, Part 24E Rules.

2.8 Modifications

No modifications were implemented to meet testing criteria.

2.9 General Test Conditions/Configurations

2.9.1 Test Modes

NOTE: The test mode(s) are selected according to relevant radio technology specifications.

Test Mode	Test Modes Description
UMTS/TM1	WCDMA system, QPSK modulation
UMTS/TM2	HSDPA system, QPSK modulation
UMTS/TM3	HSUPA system, QPSK modulation

Note: As WCDMA, HSDPA and HSUPA with the same emission designator, test result recorded in this report at the worst case UMTS/TM1 only after exploratory scan.

2.9.2 Test Environment

Environment Parameter	Selected Values During Tests	
Relative Humidity	Ambient	
Temperature	TN	Ambient
Voltage	VL	3.15V
	VN	3.85V
	VH	4.43V

NOTE: VL=lower extreme test voltage VN=nominal voltage
VH=upper extreme test voltage TN=normal temperature

3 TEST ENVIRONMENT

3.1 Address of the test laboratory

Shenzhen LCS Compliance Testing Laboratory Ltd

101, 201 Bldg A & 301 Bldg C, Juji Industrial Park Shajing Street, Baoan District, Shenzhen, China
The sites are constructed in conformance with the requirements of ANSI C63.4 (2014) and CISPR Publication 22.

3.2 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

FCC Registration Number is 254912.
Industry Canada Registration Number is 9642A.
EMSD Registration Number is ARCB0108.
UL Registration Number is 100571-492.
TUV SUD Registration Number is SCN1081.
TUV RH Registration Number is UA 50296516-001.
NVLAP Accreditation Code is 600167-0.
FCC Designation Number is CN5024.
CAB identifier: CN0071

3.3 Environmental conditions

During the measurement the environmental conditions were within the listed ranges:

Temperature:	15-35 ° C
Humidity:	30-60 %
Atmospheric pressure:	950-1050mbar

(1)expressed at approximately the 95% confidence level using a coverage factor of k=1.96.

3.4 Test Description

3.4.1 Cellular Band (824-849MHz paired with 869-894MHz) (Band V)

Test Item	FCC Rule No.	Requirements	Verdict
Effective(Isotropic) Radiated Output Power	§2.1046, §22.913	FCC: ERP ≤ 7W.	Pass
Modulation Characteristics	§2.1047	Digital modulation	N/A
Bandwidth	§2.1049	OBW: No limit. EBW: No limit.	Pass
Band Edges Compliance	§2.1051, §22.917	≤-13dBm/1%*EBW, in 1MHz bands immediately outside and adjacent to The frequency block.	Pass
Spurious Emission at Antenna Terminals	§2.1051, §22.917	≤ -13dBm/100kHz, from 9kHz to 10 th harmonics but outside authorized operating frequency ranges.	Pass
Field Strength of Spurious Radiation	§2.1053, §22.917	≤ -13dBm/100kHz.	Pass
Frequency Stability	§2.1055, §22.355	≤ ±2.5ppm.	Pass
Peak-Average Ratio	§24.232	≤13dB	Pass
NOTE 1: For the verdict, the "N/A" denotes "not applicable", the "N/T" de notes "not tested".			

3.4.2 PCS Band (1850-1910MHz paired with 1930-1990MHz) (Band II)

Test Item	FCC Rule No.	Requirements	Verdict
Effective(Isotropic) Radiated Output Power	§2.1046, §24.232	$EIRP \leq 2W$	Pass
Peak-Average Ratio	§2.1046, §24.232	$\leq 13dB$	Pass
Modulation Characteristics	§2.1047	Digital modulation	N/A
Bandwidth	§2.1049	OBW: No limit. EBW: No limit.	Pass
Band Edges Compliance	§2.1051, §24.238	$\leq -13dBm/1\%EBW$, In 1MHz bands immediately outside and adjacent to The frequency block.	Pass
Spurious Emission at Antenna Terminals	§2.1051, §24.238	$\leq -13dBm/1MHz$, from 9kHz to 10^{th} harmonics but outside authorized operating frequency ranges.	Pass
Field Strength of Spurious Radiation	§2.1053, §24.238	$\leq -13dBm/1MHz$.	Pass
Frequency Stability	§2.1055, §24.235	$\leq \pm 2.5ppm$.	Pass
NOTE 1: For the verdict, the "N/A" denotes "not applicable", the "N/T" de notes "not tested".			

Remark: 1.The measurement uncertainty is not included in the test result.

3.5 Equipments Used during the Test

Item	Equipment	Manufacturer	Model No.	Serial No.	Cal Date	Due Date
1	Power Meter	R&S	NRVS	100444	2019-06-11	2020-06-10
2	Power Sensor	R&S	NRV-Z81	100458	2019-06-11	2020-06-10
3	Power Sensor	R&S	NRV-Z32	10057	2019-06-11	2020-06-10
4	Test Software	Tonscend	JS1120-2	/	N/A	N/A
5	RF Control Unit	Tonscend	JS0806-2	N/A	2019-06-11	2020-06-10
6	MXA Signal Analyzer	Agilent	N9020A	MY50510140	2019-06-11	2020-06-10
7	DC Power Supply	Agilent	E3642A	N/A	2019-11-14	2020-11-13
8	Temperature & Humidity Chamber	GUANZHOU GOGNWEN	GDS-100	70932	2019-10-09	2020-10-08
9	EMI Test Software	AUDIX	E3	/	N/A	N/A
10	3m Chamber	SIDT FRANKONIA	SAC-3M	03CH03-HY	2019-06-12	2020-06-11
11	Positioning Controller	MF	MF-7082	N/A	2019-06-12	2020-06-11
12	Active Loop Antenna	SCHWARZBECK	FMZB 1519B	00005	2019-07-25	2020-07-24
13	By-log Antenna	SCHWARZBECK	VULB9163	5094	2019-06-16	2020-06-15
14	By-log Antenna	SCHWARZBECK	VULB9163	9163-470	2019-07-25	2020-07-24
15	Horn Antenna	SCHWARZBECK	BBHA 9120D	9120D-1924	2019-06-12	2020-06-11
16	Horn Antenna	SCHWARZBECK	BBHA 9120D	9120D-1925	2019-07-01	2020-06-30
17	Broadband Horn Antenna	SCHWARZBECK	BBHA 9170	791	2019-09-19	2020-09-18
18	Broadband Preamplifier	SCHWARZBECK	BBV 9719	9719-025	2019-09-19	2020-09-18
19	EMI Test Receiver	R&S	ESR 7	101181	2019-06-12	2020-06-11
20	RS SPECTRUM ANALYZER	R&S	FSP40	100503	2019-11-14	2020-11-13
21	AMPLIFIER	QuieTek	QTK	CHM/0809065	2019-07-01	2020-06-30
22	RF Cable-R03m	Jye Bao	RG142	CB021	2019-06-12	2020-06-11
23	RF Cable-HIGH	SUHNER	SUCOFLEX 106	03CH03-HY	2019-06-12	2020-06-11
24	6dB Attenuator	/	100W/6dB	1172040	2019-06-11	2020-06-10
25	3dB Attenuator	/	2N-3dB	/	2019-06-11	2020-06-10
26	EMI Test Receiver	R&S	ESPI	101840	2019-06-11	2020-06-10
27	Artificial Mains	R&S	ENV216	101288	2019-06-12	2020-06-11
28	10dB Attenuator	SCHWARZBECK	MTS-IMP-136	261115-001-0032	2019-06-11	2020-06-10
29	WIDEBAND RADIO COMMUNICATION TESTER	R&S	CMW 500	103818	2019-06-11	2020-06-10

Note: All equipment is calibrated through CHINA CEPREI LABORATORY and GUANGZHOU LISAI CALIBRATION AND TEST CO., LTD.

3.6 Measurement uncertainty

The data and results referenced in this document are true and accurate. The reader is cautioned that there may be errors within the calibration limits of the equipment and facilities. The measurement uncertainty was calculated for all measurements listed in this test report acc. to ETSI TR 100 028 " Electromagnetic compatibility and Radio spectrum Matters (ERM); Uncertainties in the measurement of mobile radio equipment characteristics" and is documented in the Shenzhen LCS Compliance Testing Laboratory Ltd. quality system acc. to DIN EN ISO/IEC 17025. Furthermore, component and process variability of devices similar to that tested may result in additional deviation. The manufacturer has the sole responsibility of continued compliance of the device.

Hereafter the best measurement capability for Shenzhen LCS Compliance Testing Laboratory Ltd. is reported:

Test	Range	Measurement Uncertainty	Notes
Radiated Emission	30~1000MHz	3.10 dB	(1)
Radiated Emission	1~18GHz	3.80 dB	(1)
Radiated Emission	18-40GHz	3.90 dB	(1)
Conducted Disturbance	0.15~30MHz	1.63 dB	(1)
Conducted Power	9KHz~18GHz	0.61 dB	(1)
Spurious RF Conducted Emission	9KHz~40GHz	1.22 dB	(1)
Band Edge Compliance of RF Emission	9KHz~40GHz	1.22 dB	(1)
Occupied Bandwidth	9KHz~40GHz	-	(1)

(1) This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=1.96.

4 TEST CONDITIONS AND RESULTS

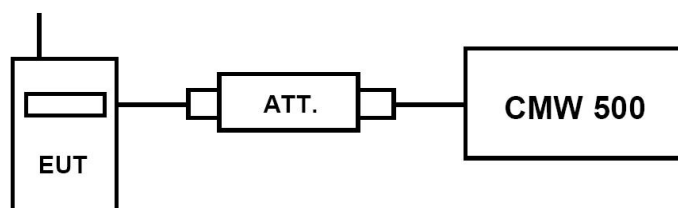
4.1 Output Power

TEST APPLICABLE

During the process of testing, the EUT was controlled via R&S WIDEBAND RADIO COMMUNICATION TESTER (CMW 500) to ensure max power transmission and proper modulation. This result contains output power and EIRP measurements for the EUT. In all cases, output power is within the specified limits.

4.1.1. Conducted Output Power

TEST CONFIGURATION



TEST PROCEDURE

Conducted Power Measurement:

- Place the EUT on a bench and set it in transmitting mode.
- Connect a low loss RF cable from the antenna port to a CMW 500 by an Att.
- EUT Communicate with CMW 500 then selects a channel for testing.
- Add a correction factor to the display CMW 500, and then test.

TEST RESULTS

Item	band	WCDMA Band II result (dBm)			WCDMA Band V result (dBm)		
		Channel/Frequency(MHz)			Channel/Frequency(MHz)		
	sub-test	9262/ 1852.4	9400/ 1880	9538/ 1907.6	4132/ 826.4	4182/ 836.4	4233/ 846.6
RMC	12.2kbps RMC	23.49	23.55	23.43	23.57	23.53	23.56
HSDPA	Sub –Test 1	22.95	22.91	22.95	22.94	22.97	22.97
	Sub –Test 2	22.87	22.88	22.82	22.83	22.87	22.87
	Sub –Test 3	22.81	22.84	22.75	22.78	22.78	22.76
	Sub –Test 4	22.76	22.73	22.75	22.70	22.75	22.81
HSUPA	Sub –Test 1	22.72	22.72	22.80	22.82	22.86	22.76
	Sub –Test 2	22.82	22.82	22.88	22.84	22.89	22.85
	Sub –Test 3	22.74	22.74	22.78	22.79	22.82	22.83
	Sub –Test 4	22.84	22.85	22.85	22.89	22.84	22.86
	Sub –Test 5	22.74	22.75	22.74	22.72	22.82	22.80

4.1.1 Radiated Output Power

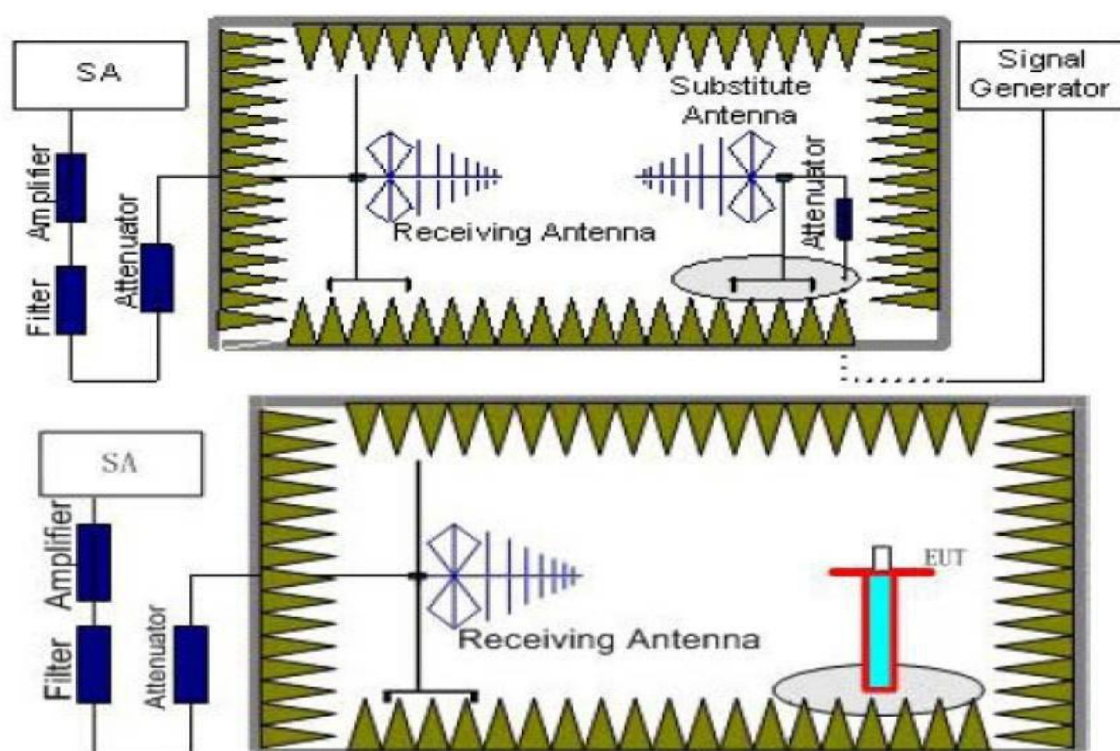
TEST DESCRIPTION

This is the test for the maximum radiated power from the EUT.

Rule Part 24.232(c) specifies, "Mobile/portable stations are limited to 2 watts e.i.r.p. Peak power" and 24.232(e) specifies that "Peak transmit power must be measured over any interval of continuous transmission using instrumentation calibrated in terms of an rms-equivalent voltage."

Rule Part 22.913(a) specifies "The ERP of mobile transmitters and auxiliary test transmitters must not exceed 7 Watts."

TEST CONFIGURATION



TEST PROCEDURE

1. EUT was placed on a 1.50 meter high non-conductive stand at a 3 meter test distance from the receive antenna. A receiving antenna was placed on the antenna mast 3 meters from the EUT for emission measurements. The height of receiving antenna is 1.50m. Detected emissions were maximized at each frequency by rotating the EUT through 360° and adjusting the receiving antenna polarization. The radiated emission measurements of all transmit frequencies in three channels (High, Middle, Low) were measured with peak detector.
2. A log-periodic antenna or double-ridged waveguide horn antenna shall be substituted in place of the EUT. The log-periodic antenna will be driven by a signal generator and the level will be adjusted till the same power value on the spectrum analyzer or receiver. The level of the spurious emissions can be calculated through the level of the signal generator, cable loss, the gain of the substitution antenna and the reading of the spectrum analyzer or receiver.
3. The EUT is then put into continuously transmitting mode at its maximum power level during the test. Set Test Receiver or Spectrum RBW=10MHz, VBW=10MHz, And the maximum value of the receiver should be recorded as (P_r).
4. The EUT shall be replaced by a substitution antenna. In the chamber, an substitution antenna for the frequency band of interest is placed at the reference point of the chamber. An RF Signal source for the frequency band of interest is connected to the substitution antenna with a cable that has been constructed to not interfere with the radiation pattern of the antenna. A power (P_{Mea}) is applied to the input of the substitution antenna, and adjust the level of the signal generator output until the value of the receiver reach