FCC CFR47 PART 27
CERTIFICATION TEST REPORT
FCC ID: 2ANR9-A1

Product： 3G MOBILE PHONE

Trade Mark： GEOTEL, HX, HUAXIA, HX MOBILE

Model Number： A1

Serial Model： G1,A275,b220,J7, A1 PRO

Report No.： SER170915262004E

Prepared for

MEITU ELECTRONICS LIMITED

FLAT A&B, 2/F, GEMFAIR COMMERCIAL BUILDING, NO:555-557

CANTON KLN, HK

Prepared by

Shenzhen NTEK Testing Technology Co., Ltd.

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TEST RESULT CERTIFICATION

Applicant's name	:	MEITU ELECTRONICS LIMITED
Address	:	FLAT A&B, 2/F, GEMFAIR COMMERCIAL BUILDING, NO:555-557 CANTON KLN, HK
Manufacturer's Name	:	HUI ZHONG Electronic Technology co.,Ltd. Of Dongguan city
Address	:	2F of Building,No.9, Lihe Street Liheng Village Committee, Qingxi Town, Dongguan City
Product name	:	3G MOBILE PHONE
Model and/or type reference	:	A1
Serial Model:		G1,A275,b220,J7, A1 PRO
Standards	:	FCC CFR 47 Part 27
Test procedure	:	ANSI C63.4-2014

This device described above has been tested by NTEK, and 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 (s) of performance of tests..... 15 Sep. 2017 ~ 10 Oct. 2017

Date of Issue ..... 10 Oct. 2017

Test Result ..... **Pass**

Testing Engineer : Lake.Xie

(Lake Xie)

Technical Manager : Jason chen

(Jason Chen)

Authorized Signatory : Sam . Chen

(Sam Chen)

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1. GENERAL INFORMATION

1.1 PRODUCT DESCRIPTION

A major technical description of EUT is described as following:

Product Designation:	3G MOBILE PHONE
Trade Mark	GEOTEL, HX, HUAXIA, HX MOBILE
Model Name	A1
FCC ID:	2ANR9-A1
Frequency Bands:	U.S. Bands: ☒UMTS-FDD Band Ⅳ
Frequency Range:	UMTS-FDD Band 4 Uplink: 1712.4MHz-1752.6MHz, Downlink: 2112.4MHz-2152.6MHz
Type of Modulation:	QPSK
Antenna:	FPCB Antenna
Antenna gain:	1 dBi
Power Supply:	DC 3.7V 3400mAh from battery or DC 5V from USB Port
Battery parameter:	DC 3.7V/3400mAh
Adapter:	Input:100-240V,50-60Hz 0.15A Output:5V,1000mA
Extreme Vol. Limits:	DC3.5 V to 4.2 V (Nominal DC3.7 V)
Extreme Temp. Tolerance	-10℃ to +55℃
HW Version	N/A
SW Version	N/A
** Note: The High Voltage 4.2V and Low Voltage 3.5V was declared by manufacturer, The EUT couldn't be operate normally with higher or lower voltage.	

1.2 RELATED SUBMITTAL(S) / GRANT (S)

This submittal(s) (test report) is intended for **FCC ID: 2ANR9-A1** filing to comply with the FCC Part 27.

1.3 TEST METHODOLOGY

The tests documented in this report were performed in accordance with TIA-603-D, FCC CFR 47 Part 27.

1.4 TEST FACILITY

All measurement facilities used to collect the measurement data are located at
1/F, Building E, Fenda Science Park, Sanwei Community, Xixiang Street, Bao'an District, Shenzhen 518126 P.R. China.
The sites are constructed in conformance with the requirements of ANSI C63.7, ANSI C63.10 and CISPR Publication 22.

CNAS-Lab.	:	The Laboratory has been assessed and proved to be in compliance with CNAS-CL01:2006 (identical to ISO/IEC 17025:2005) The Certificate Registration Number is L5516.
IC-Registration		The Certificate Registration Number is 9270A-1.
FCC- Accredited		Test Firm Registration Number: 463705. Designation Number: CN1184
A2LA-Lab.		The Certificate Registration Number is 4298.01 This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005 General requirements for the competence of testing and calibration laboratories. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (refer to joint ISO-ILAC-IAF Communiqué dated 8 January 2009).
Name of Firm	:	Shenzhen NTEK Testing Technology Co., Ltd.
Site Location	:	1/F, Building E, Fenda Science Park, Sanwei Community, Xixiang Street, Bao'an District, Shenzhen 518126 P.R. China.

1.5 SPECIAL ACCESSORIES

The battery and the charger, earphone supplied by the applicant were used as accessories and being tested with EUT intended for FCC grant together.

1.6 WORST-CASE CONFIGURATION AND MODE

The worst-case scenario for all measurements is based on the investigation results.

The device has UMTS-FDD Band Ⅳ
The RB Size was selected to measure for peak or average ERP and EIRP, which was based on the conducted power verification baseline data.
For the fundamental investigation of radiated emissions, the EUT is investigated for vertical and horizontal antenna orientations and X Y and Z orientations of the EUT alone. After the investigations the worst case was determined to be at X orientation for all LTE bands.

2. SYSTEM TEST CONFIGURATION

2.1 EUT CONFIGURATION

The EUT configuration for testing is installed on RF field strength measurement to meet the Commission's requirement and operating in a manner which intends to maximize its emission characteristics in a continuous normal application.

2.2 EUT EXERCISE

The Transmitter was operated in the maximum output power mode through Communication Tester. The TX frequency was fixed which was for the purpose of the measurements.

2.3 CONFIGURATION OF EUT SYSTEM

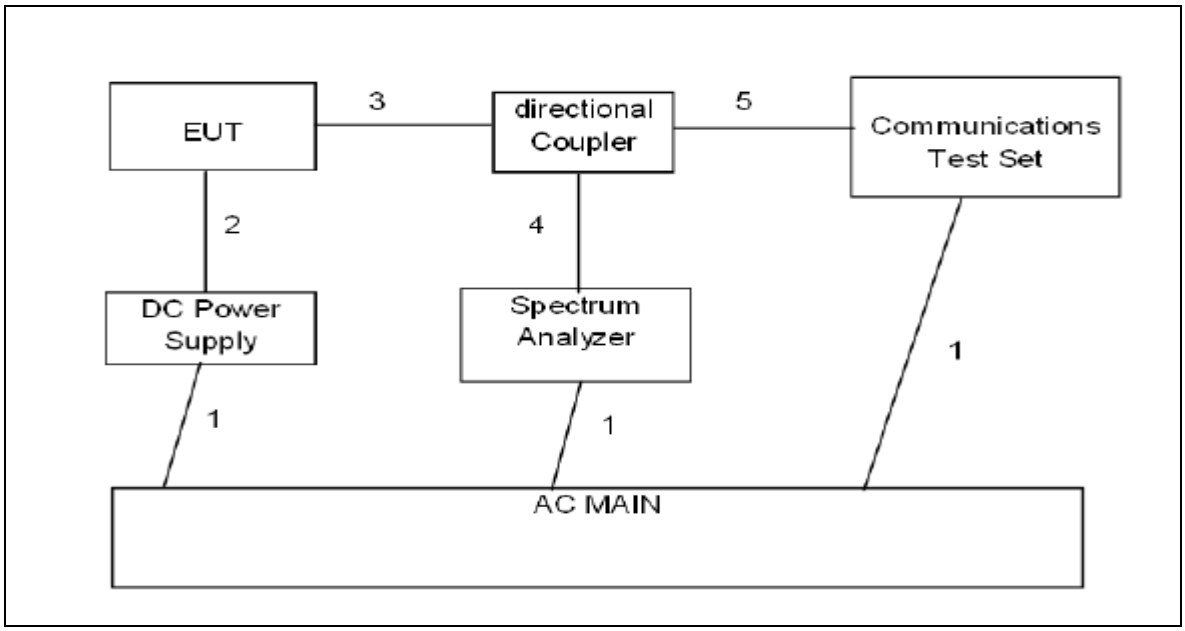
Table 2-1 Equipment Used in EUT System

Item	Equipment	Mfr/Brand	Model/Type No.	FCC ID	Note
E-1	3G MOBILE PHONE	GEOTEL, HX, HUAXIA, HX MOBILE	A1	2ANR9-A1	EUT

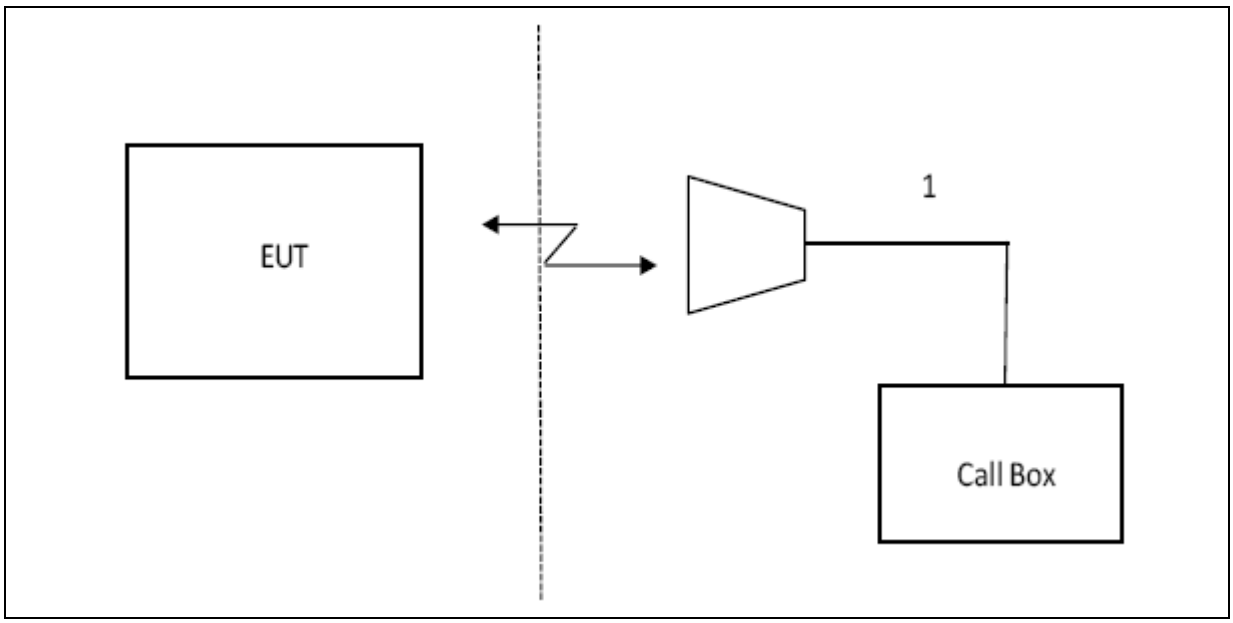
Note: All the accessories have been used during the test.
the following "EUT" in setup diagram means EUT system.

2.4 TEST SETUP

CONDUCTED SETUP DIAGRAM FOR TESTS



RADIATED SETUP DIAGRAM FOR TESTS



3.TEST AND MEASUREMENT EQUIPMENT

The following test and measurement equipment was utilized for the tests documented in this report:

NAME OF EQUIPMENT	MANUFACTURER	MODEL	SERIAL NUMBER	NEXT CAL. DATE
SPECTRUM ANALYZER	AGILENT	E4440A	US44300399	2018.6.26
TEST RECEIVER	R&S	ESCI	A0304218	2018.6.26
COMMUNICATION TESTER	R&S	CMU200	A0304247	2018.6.26
COMMUNICATION TESTER	R&S	CMW500	X	2018.6.26
TEST RECEIVER	R&S	FCKL1528	A0304230	2018.6.26
LISN	SCHWARZBECK	NSLK8127	A0304233	2018.6.26
CLIMATE CHAMBER	ALBATROSS	--	--	2018.6.26
Loop Antenna	Daze	ZN30900N	SEL0097	2018.6.26
Bilogical Antenna	A.H. Systems Inc.	SAS-521-4	N/A	2018.6.26
Horn Antenna	EM	EM-AH-10180	N/A	2018.6.26

4. RF OUTPUT POWER

According to FCC §2.1046; §27.50(c.10); §27.50(d.4)

4.1 OUTPUT POWER MEASUREMENT

Conducted Measurement

EUT was set for low, mid, high channel with modulated mode and highest RF output power.

The spectrum analyzer was connected to the antenna terminal.

Procedures: (According with KDB 971168)

For Conducted Power:

1. The transmitter output port was connected to base station.
2. Set EUT at maximum power through base station.
3. Select lowest, middle, and highest channels for each band and different test mode.
4. The instrument must have an available measurement/resolution bandwidth that is equal to or exceeds the OBW. If this capability is available, then the following procedure can be used to determine the total peak output power.

a) Set the RBW ≥ OBW.

b) Set VBW ≥ 3 × RBW.

c) Set span ≥ 2 x RBW

d) Sweep time = auto couple.

e) Detector = peak.

f) Ensure that the number of measurement points ≥ span/RBW.

g) Trace mode = max hold.

h) Allow trace to fully stabilize.

1) Use the peak marker function to determine the peak amplitude level.

For ERP/EIRP: (According with TIA 603D)

1. The transmitter was placed on a wooden turntable, and it was transmitting into a non-radiating load which was also placed on the turntable.
2. The measurement antenna was placed at a distance of 3 meters from the EUT. During the tests, the antenna height and polarization as well as EUT azimuth were varied in order to identify the maximum level of emissions from the EUT. The test was performed by placing the EUT on 3-orthogonal axis.
3. Remove the EUT and replace it with substitution antenna. A signal generator was connected to the substitution antenna by a non-radiating cable. The absolute levels of the spurious emissions were measured by the substitution.

Sample Calculation:

EUT Field Strength (dBm) = Reading (Signal generator) + Antenna Gain (substitution antenna) - Cable loss (From Signal Generator to substitution antenna)

Remark: Conducted Burst Average power for reporting purposes only.

4.2 Test Result

Conducted Power

UMTS Mode:

UMTS-FDD Band Ⅳ

Band/ Time Slot configuration	Channel	Frequency	Average power (dBm)
RMC 12.2kbps	1313	1712.6	20.46
	1413	1732.6	20.73
	1512	1752.4	20.25
HSDPA Subtest1	1313	1712.6	19.32
	1413	1732.6	19.69
	1512	1752.4	19.18
HSDPA Subtest2	1313	1712.6	18.78
	1413	1732.6	19.17
	1512	1752.4	18.63
HSDPA Subtest3	1313	1712.6	18.75
	1413	1732.6	19.16
	1512	1752.4	18.63
HSDPA Subtest4	1313	1712.6	18.79
	1413	1732.6	19.18
	1512	1752.4	18.63
HSUPA Subtest1	1313	1712.6	18.76
	1413	1732.6	19.16
	1512	1752.4	18.61
HSUPA Subtest2	1313	1712.6	18.76
	1413	1732.6	19.11
	1512	1752.4	18.45
HSUPA Subtest3	1313	1712.6	18.68
	1413	1732.6	19.06
	1512	1752.4	18.59
HSUPA Subtest4	1313	1712.6	18.75
	1413	1732.6	19.15
	1512	1752.4	18.55
HSUPA	1313	1712.6	19.22

Subtest5	1413	1732.6	19.65
	1512	1752.4	19.15

EIRP (worst case)

EIRP for AWS Band (Part 27)

Frequency (MHz)	Substituted level (dBm)	Antenna Polarization	Antenna Gain correction (dBi)	Cable Loss (dB)	Absolute Level (dBm)	Limit (dBm)
1712.4	11.12	V	7.76	0.95	17.93	30
1712.4	11.27	H	7.76	0.95	18.08	30
1732.6	10.95	V	7.78	0.95	17.78	30
1732.6	11.09	H	7.78	0.95	17.92	30
1752.6	11.22	V	7.80	0.96	18.06	30
1752.6	10.83	H	7.80	0.96	17.67	30

5. Modulation Characteristic

According to FCC §2.1047(d), Part 27 there is no specific requirement for digital modulation, therefore modulation characteristic is not presented.

6. Occupied Bandwidth

According to FCC 2.1049, §27.53(a.5)

6.1 Occupied Bandwidth MEASUREMENT

Conducted Measurement

EUT was set for low, mid, high channel with modulated mode and highest RF output power.

The spectrum analyser was connected to the antenna terminal.

Procedures:

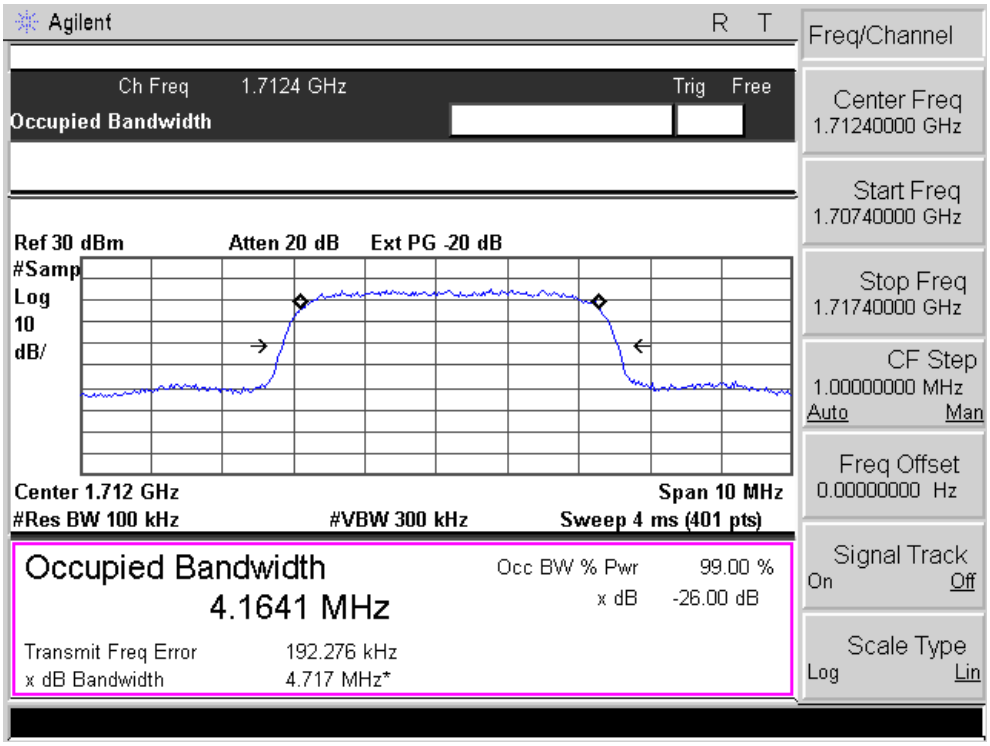
1. The EUT was connected to Spectrum Analyzer and Base Station via power divider.
2. The 99% and 26 dB occupied bandwidth (BW) of the middle channel for the highest RF powers.
3. Details according with KDB 971168 section 4.1 & 4.2.

6.2 Test Result

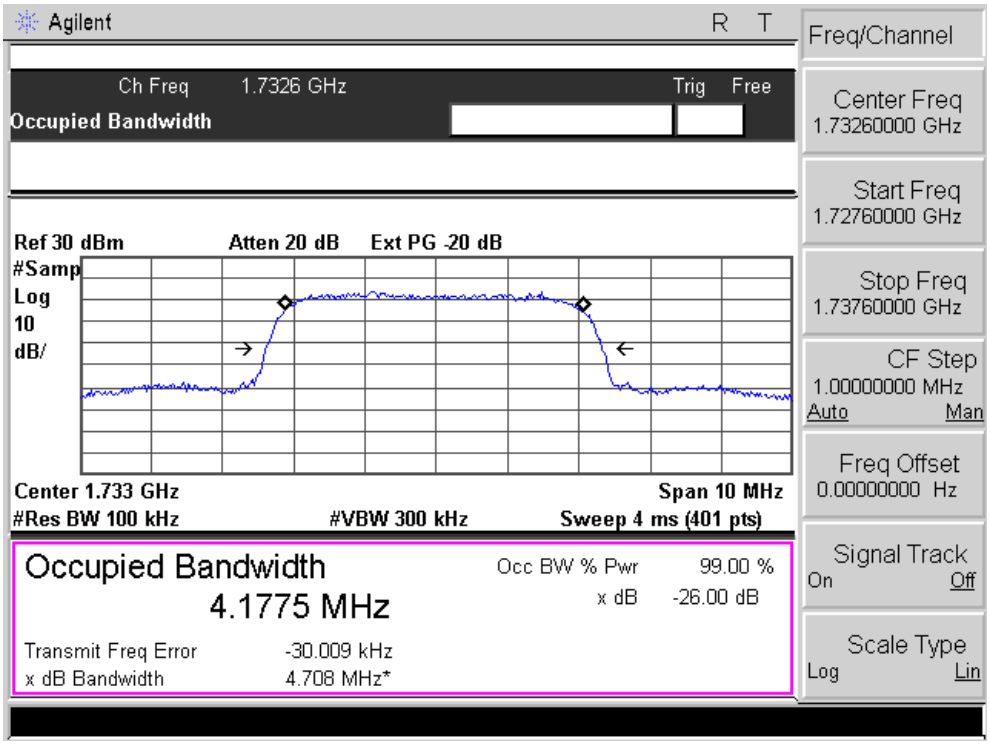
UMTS-FDD Band Ⅳ (Part 27)

Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)	26 dB Bandwidth (MHz)
1313	1712.4	4717	4164.1
1413	1732.6	4708	4177.5
1512	1752.6	4707	4135.7

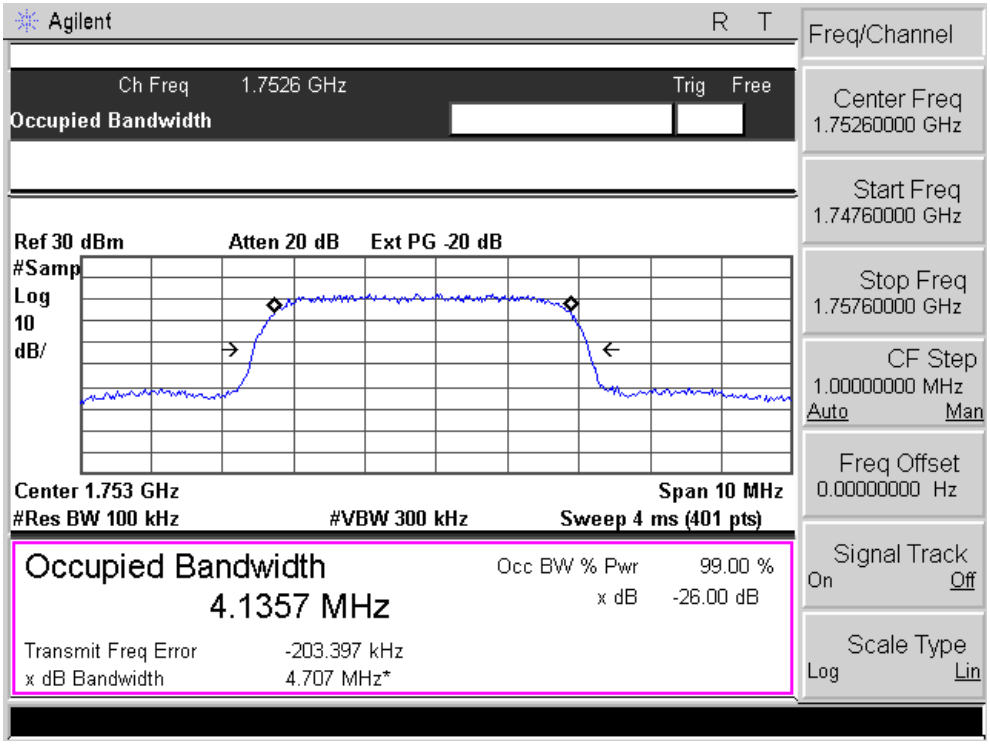
99% Occupied Bandwidth & 26 dB Bandwidth(L)



99% Occupied Bandwidth & 26 dB Bandwidth(M)



99% Occupied Bandwidth & 26 dB Bandwidth(H)



7. Spurious Emissions at Antenna Terminals

According to FCC §2.1051, §27.53(h)

7.1 Spurious Emissions MEASUREMENT

Conducted Measurement

EUT was set for low, mid, high channel with modulated mode and highest RF output power.

The spectrum analyzer was connected to the antenna terminal.

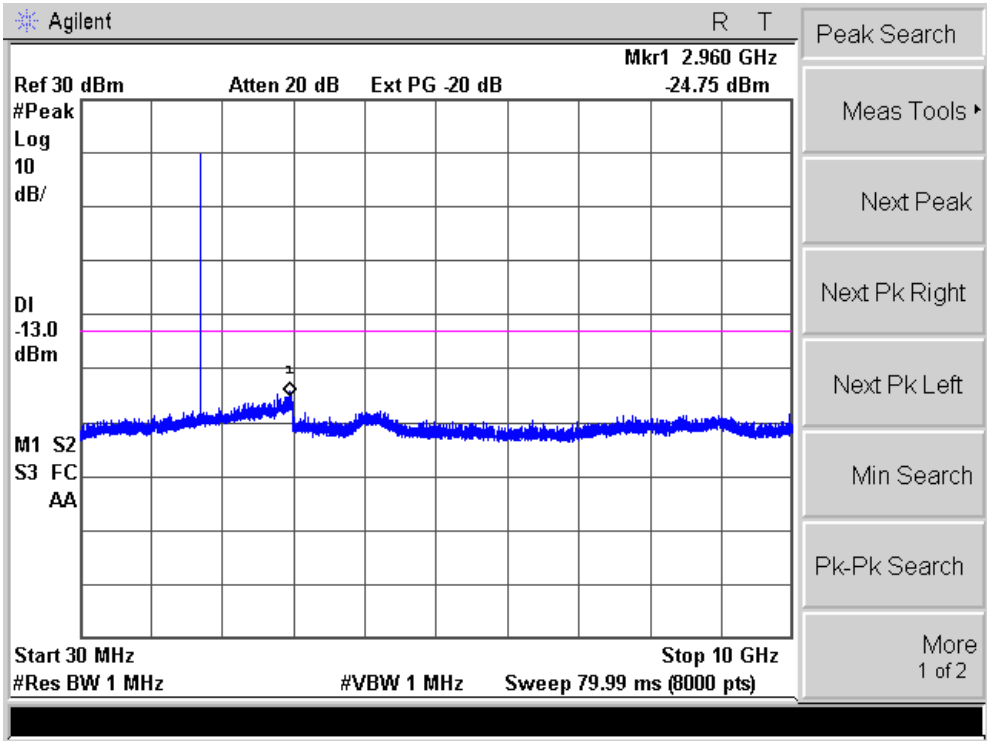
Procedures:

1. The EUT was connected to Spectrum Analyzer and Base Station via power divider.
2. The Band Edges of low and high channels for the highest RF powers were measured. Setting RBW as roughly BW/100.

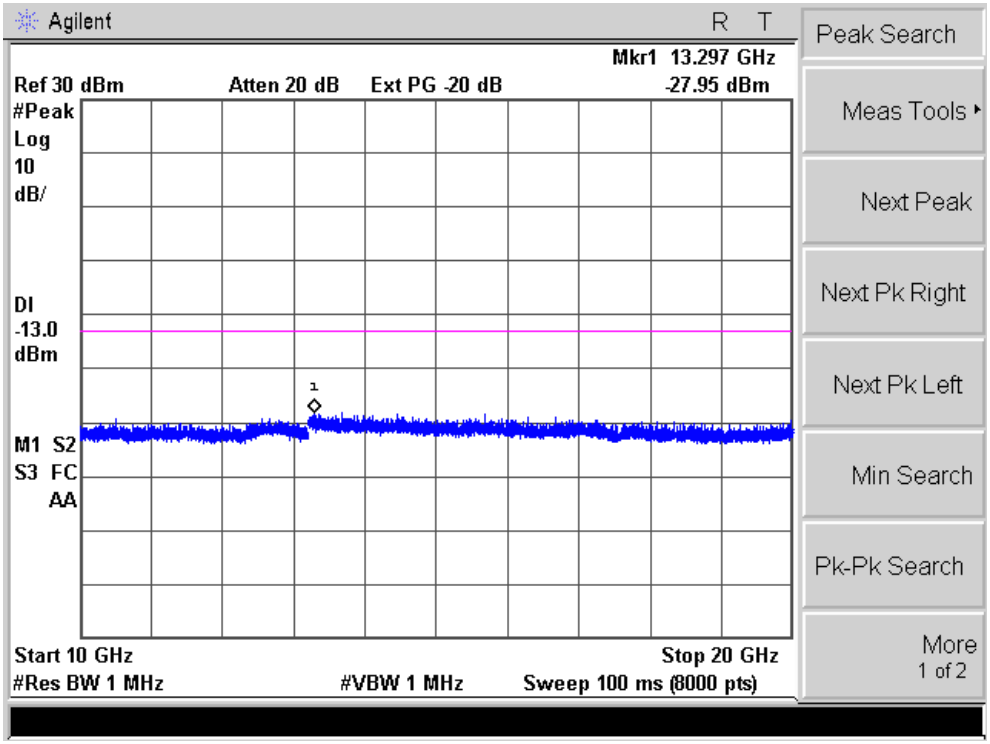
7.2 Test Result

UMTS-FDD BandⅣ (Part 27)

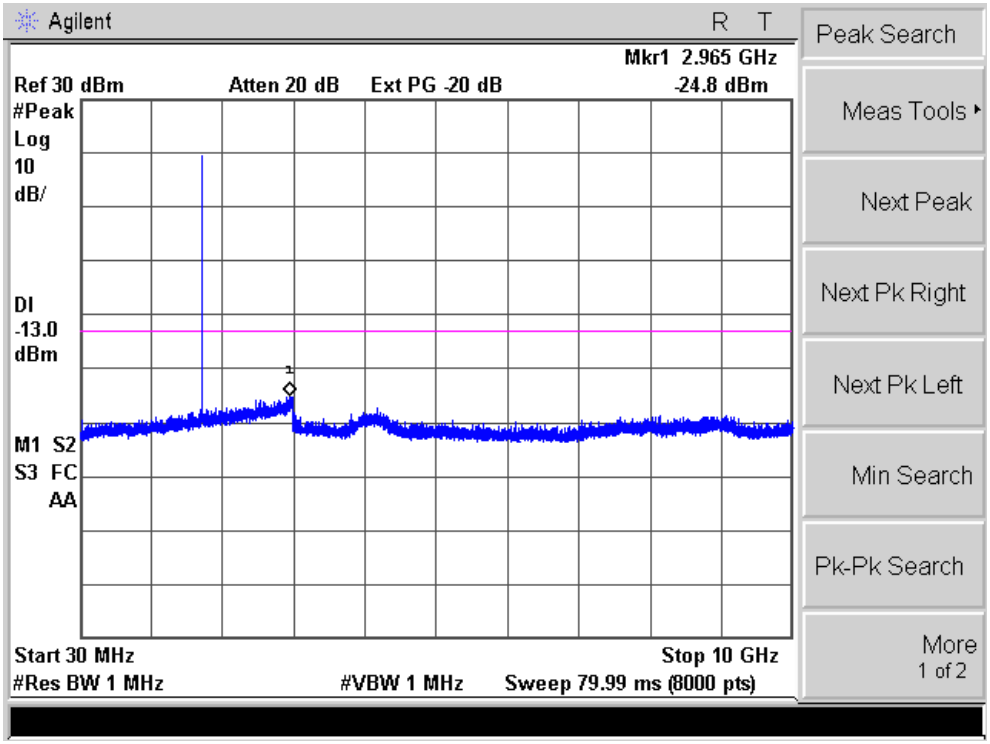
30MHz -10G



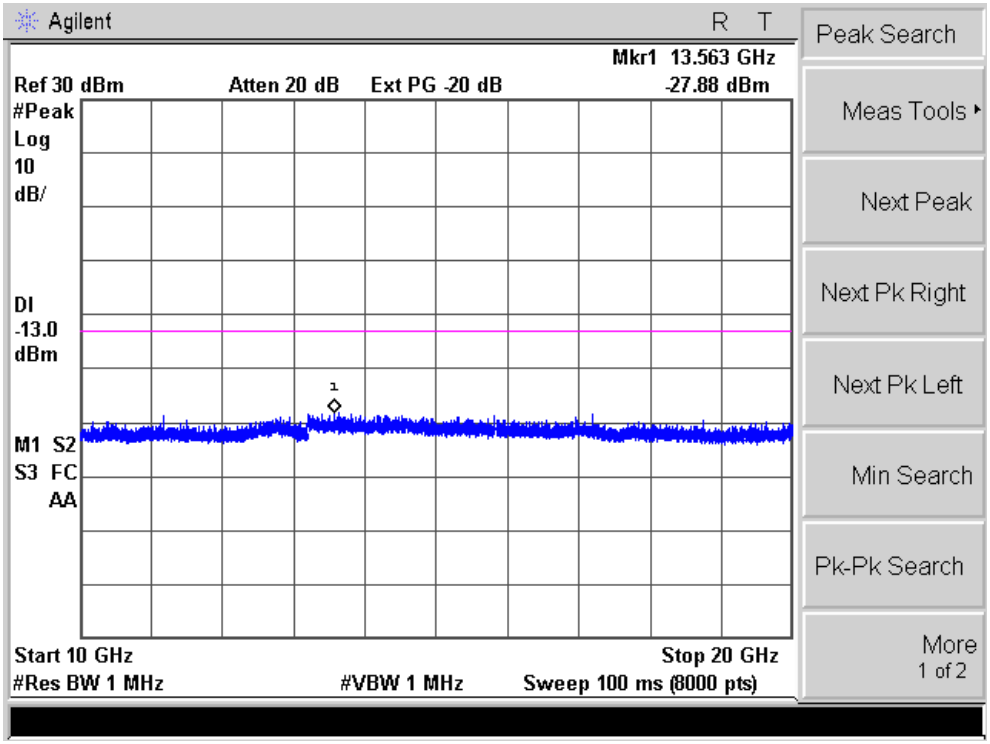
10G -20G



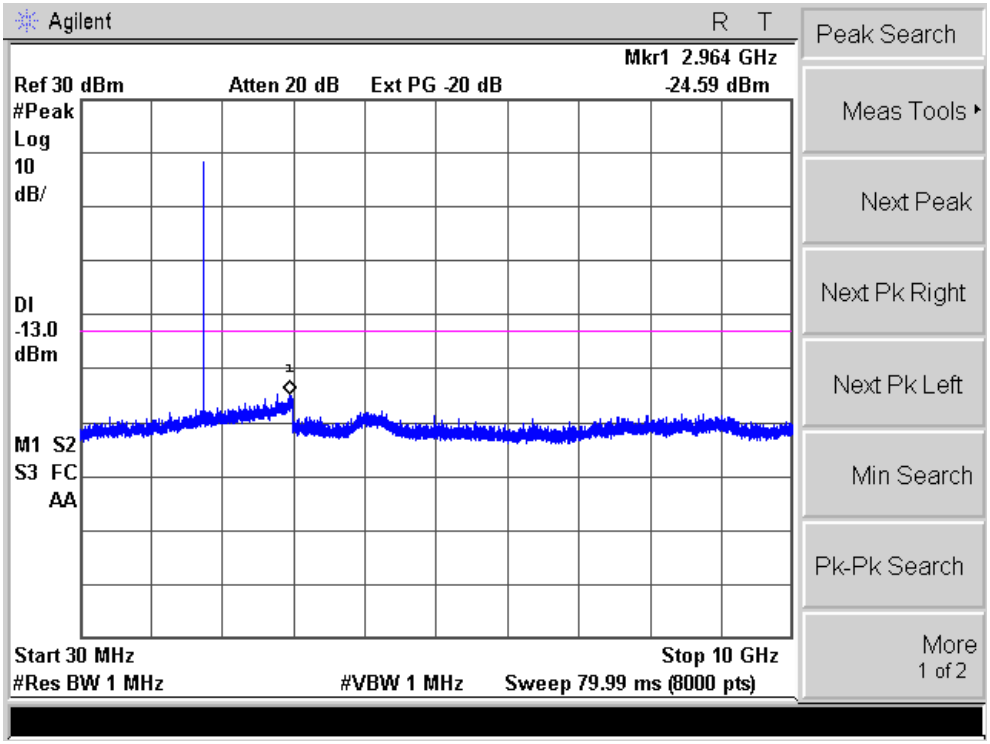
30MHz -10G



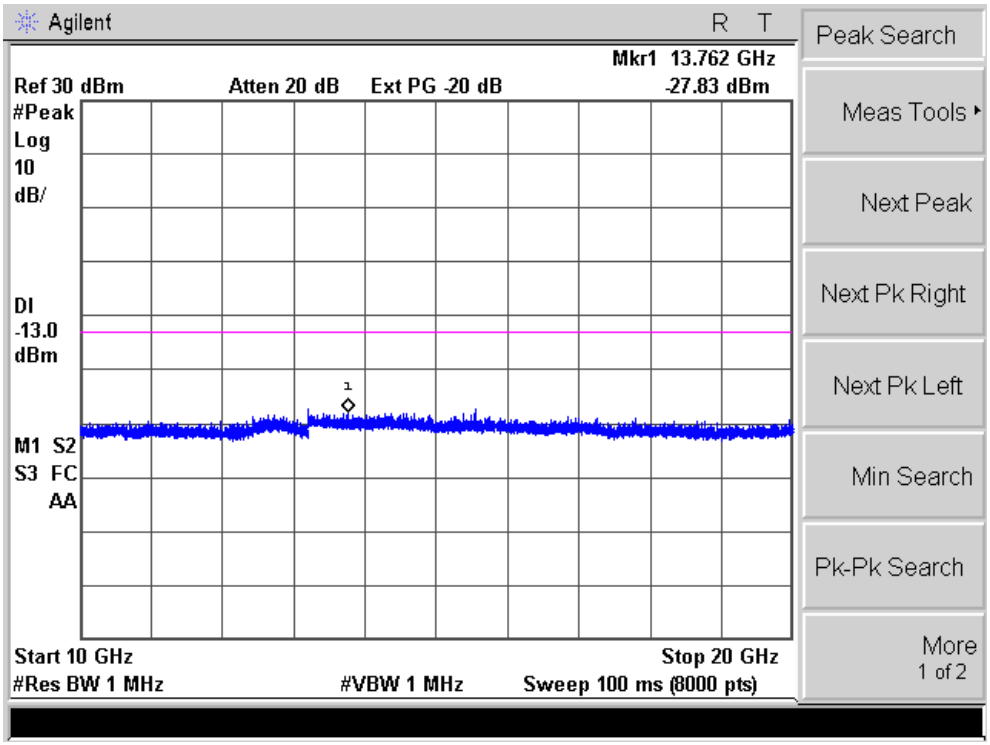
10G -20G



30MHz -10G



10G -20G



8. Spurious Radiated Emissions

According to FCC §2.1053, § § 27.53(h)

8.1 Spurious Radiated MEASUREMENT

1. All possible modes of operation were investigated. Only the 6 worst case emissions measured, using the correct CISPR detectors, are reported. All other emissions were relatively insignificant.
2. A "-ve" margin indicates a PASS as it refers to the margin present below the limit line at the particular frequency.

Standard Requirement:

The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitter power (P) by a factor of at least 43 + 10 log (P) dB. The spectrum is scanned from 30 MHz up to a frequency including its 10th harmonic

Procedures: (According with TIA 603D)

1. The transmitter was placed on a wooden turntable, and it was transmitting into a non-radiating load which was also placed on the turntable.
2. The measurement antenna was placed at a distance of 3 meters from the EUT. During the tests, the antenna height and polarization as well as EUT azimuth were varied in order to identify the maximum level of emissions from the EUT. The test was performed by placing the EUT on 3-orthogonal axis.
3. Remove the EUT and replace it with substitution antenna. A signal generator was connected to the substitution antenna by a non-radiating cable. The absolute levels of the spurious emissions were measured by the substitution.

Sample Calculation:

EUT Field Strength (dBm) = Reading (Signal generator) + Antenna Gain (substitution antenna) - Cable loss (From Signal Generator to substitution antenna)

8.2 Test Result

Low channel

Frequency (MHz)	Substituted level (dBm)	Polarity (H/V)	Antenna Gain Correction (dB)	Cable Loss (dB)	Corrected Reading (dBm)	Limit (dBm)	Margin (dB)
3424.8	-47.11	V	10.07	2.66	-39.7	-13	-26.7
3424.8	-46.99	H	10.07	2.66	-39.58	-13	-26.58
425.5	-53.87	V	6.30	0.35	-47.92	-13	-34.92
803.4	-50.66	H	6.80	0.69	-44.55	-13	-31.55

Middle channel

Frequency (MHz)	Substituted level (dBm)	Polarity (H/V)	Antenna Gain Correction (dB)	Cable Loss (dB)	Corrected Reading (dBm)	Limit (dBm)	Margin (dB)
3465.2	-47.11	V	10.08	2.66	-39.69	-13	-26.69
3465.2	-46.99	H	10.08	2.66	-39.57	-13	-26.57
423.7	-53.87	V	6.34	0.35	-47.88	-13	-34.88
803.6	-50.66	H	6.83	0.69	-44.52	-13	-31.52

High channel

Frequency (MHz)	Substituted level (dBm)	Polarity (H/V)	Antenna Gain Correction (dB)	Cable Loss (dB)	Corrected Reading (dBm)	Limit (dBm)	Margin (dB)
3505.2	-47.11	V	10.09	2.66	-39.68	-13	-26.68
3505.2	-46.99	H	10.09	2.66	-39.56	-13	-26.56
427.1	-53.87	V	6.38	0.35	-47.84	-13	-34.84
802.6	-50.66	H	6.87	0.69	-44.48	-13	-31.48

9. Band Edge

According to FCC §27.53(h)

9.1 Band Edge MEASUREMENT

Conducted Measurement

EUT was set for low, mid, high channel with modulated mode and highest RF output power.

The spectrum analyzer was connected to the antenna terminal.

Standard Requirement:

The power of any emission outside of the authorized operating frequency ranges must be lower than the transmitter power (P) by a factor of at least 43 + 10 log (P) dB.

Procedures:

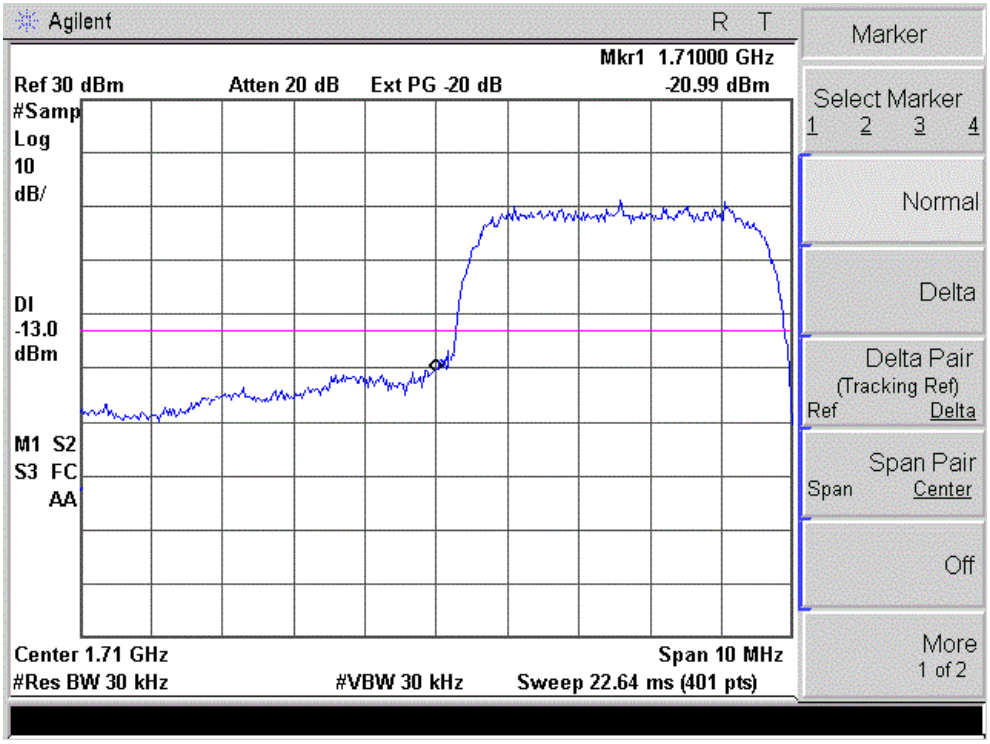
1. The EUT was connected to Spectrum Analyzer and Base Station via power divider.
2. The Band Edges of low and high channels for the highest RF powers were measured. Setting RBW as roughly BW/100.
3. Details according with KDB 971168 section 6.0.

9.2 Test Result

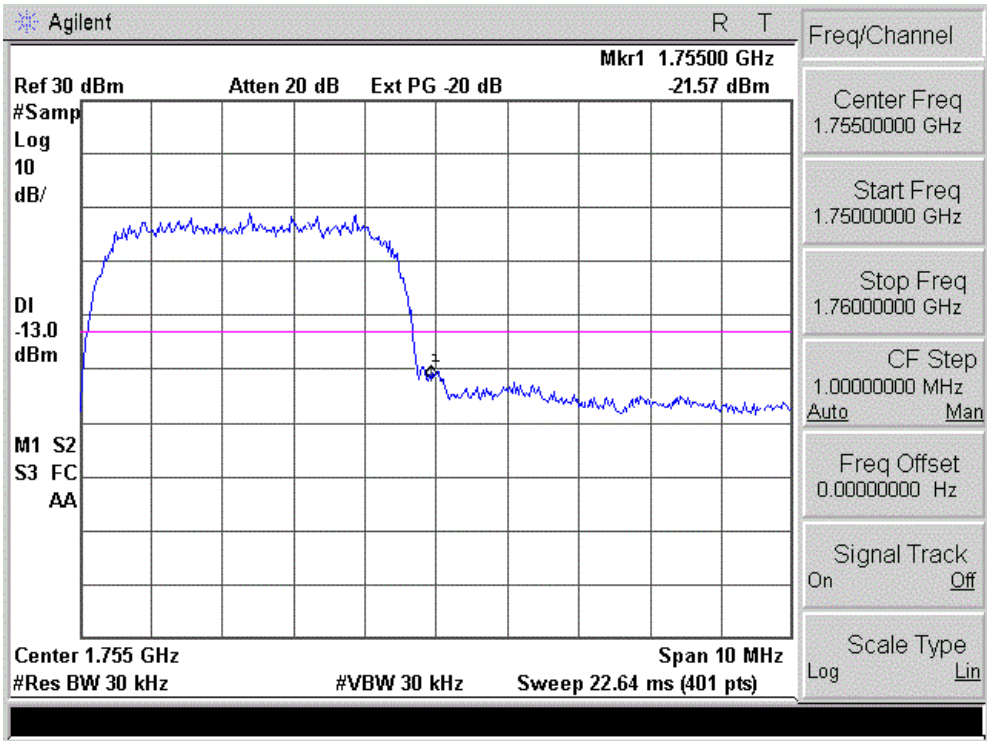
UMTS-FDD BandⅣ (Part 27)

Frequency (MHz)	Emission (dBm)	Limit (dBm)
1710.000	-20.99	-13
1755.000	-21.57	-13

Low Channel



High Channel



10. FREQUENCY STABILITY

According to FCC §2.1055, §27.5(h) & §27.54

10.1 FREQUENCY STABILITY MEASUREMENT

Standard Requirement:

The frequency stability shall be sufficient to ensure that the fundamental emissions stay within the authorized bands of operation.

Frequency Tolerance for Transmitters in the Public Mobile Services

Frequency Range (MHz)	Base, fixed (ppm)	Mobile ≤ 3 watts (ppm)	Mobile ≤ 3 watts (ppm)
25 to 50	20.0	20.0	50.0
50 to 450	5.0	5.0	50.0
450 to 512	2.5	5.0	5.0
821 to 896	1.5	2.5	2.5
928 to 929.	5.0	N/A	N/A
929 to 960.	1.5	N/A	N/A
2110 to 2220	10.0	N/A	N/A

Procedures:

A communication link was established between EUT and base station. The frequency error was monitored and measured by base station under variation of ambient temperature and variation of primary supply voltage.

Limit: The frequency stability of the transmitter shall be maintained within ±0.00025% (±2.5ppm) of the center frequency.

10.2 Test Result

Frequency Stability versus Temperature: The Frequency tolerance of the carrier signal shall be maintained within 2.5ppm of the operating frequency over a temperature variation of -10ºC to +55ºC at normal supply voltage.

UMTS-FDD BandⅣ (Part 27)

Middle Channel				
Temperature (℃)	**Power Supplied (V_{DC})**	**Frequency Error (Hz)**	**Frequency Error (ppm)**	**Limit (ppm)**
-10	3.7	25	0.0144	2.5
0		41	0.0237	2.5
10		40	0.0231	2.5
20		36	0.0208	2.5
30		14	0.0081	2.5
40		35	0.0202	2.5
50		32	0.0185	2.5
55		28	0.0162	2.5
25	4.2	35	0.0202	2.5
	3.5	21	0.0121	2.5

----END OF REPORT----