

RF TEST REPORT



Report No.: 16070480-FCC-R1

Supersede Report No.: N/A

Applicant	MOBIWIRE MOBILES (NINGBO) CO.,LTD	
Product Name	Mobile phone	
Model No.	öwn SMART VALUE	
Serial No.	N/A	
Test Standard	FCC Part 22(H):2015 ;FCC Part 24(E):2015;ANSI/TIA-603-D: 2010	
Test Date	April 28 to May 10, 2016&May 19 to 20, 2016	
Issue Date	May 20, 2016	
Test Result	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail	
Equipment complied with the specification <input checked="" type="checkbox"/>		
Equipment did not comply with the specification <input type="checkbox"/>		
<i>Winnie Zhang</i>	<i>David Huang</i>	
Winnie Zhang Test Engineer	David Huang Checked By	
This test report may be reproduced in full only Test result presented in this test report is applicable to the tested sample only		

Issued by:

SIEMIC (SHENZHEN-CHINA) LABORATORIES

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Laboratories Introduction

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Accreditations for Conformity Assessment

Country/Region	Scope
USA	EMC, RF/Wireless, SAR, Telecom
Canada	EMC, RF/Wireless, SAR, Telecom
Taiwan	EMC, RF, Telecom, SAR, Safety
Hong Kong	RF/Wireless, SAR, Telecom
Australia	EMC, RF, Telecom, SAR, Safety
Korea	EMI, EMS, RF, SAR, Telecom, Safety
Japan	EMI, RF/Wireless, SAR, Telecom
Singapore	EMC, RF, SAR, Telecom
Europe	EMC, RF, SAR, Telecom, Safety

Test Report	16070480-FCC-R1
Page	3 of 85

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CONTENTS

1. REPORT REVISION HISTORY	5
2. CUSTOMER INFORMATION	5
3. TEST SITE INFORMATION	5
4. EQUIPMENT UNDER TEST (EUT) INFORMATION	6
5. TEST SUMMARY	10
6. MEASUREMENTS, EXAMINATION AND DERIVED RESULTS	11
6.1 RF EXPOSURE (SAR).....	11
6.2 RF OUTPUT POWER	12
6.3 PEAK-AVERAGE RATIO.....	24
6.4 OCCUPIED BANDWIDTH.....	27
6.5 SPURIOUS EMISSIONS AT ANTENNA TERMINALS	37
6.6 SPURIOUS RADIATED EMISSIONS	50
6.7 BAND EDGE.....	56
6.8 FREQUENCY STABILITY	66
ANNEX A. TEST INSTRUMENT.....	74
ANNEX B. EUT AND TEST SETUP PHOTOGRAPHS.....	75
ANNEX C. TEST SETUP AND SUPPORTING EQUIPMENT.....	81
ANNEX C.II. EUT OPERATING CONKITIONS	83
ANNEX D. USER MANUAL / BLOCK DIAGRAM / SCHEMATICS / PARTLIST	84
ANNEX E. DECLARATION OF SIMILARITY	85

1. Report Revision History

Report No.	Report Version	Description	Issue Date
16070480-FCC-R1	NONE	Original	May 11, 2016
16070480-FCC-R1	V1	Adding GPRS/EGPRS data	May 20, 2016

2. Customer information

Applicant Name	MOBIWIRE MOBILES (NINGBO) CO.,LTD
Applicant Add	No.999,Dacheng East Road,Fenghua City,Zhejiang
Manufacturer	MOBIWIRE MOBILES (NINGBO) CO.,LTD
Manufacturer Add	No.999,Dacheng East Road,Fenghua City,Zhejiang

3. Test site information

Lab performing tests	SIEMIC (Shenzhen-China) LABORATORIES
Lab Address	Zone A, Floor 1, Building 2 Wan Ye Long Technology Park South Side of Zhoushi Road, Bao' an District, Shenzhen, Guangdong China 518108
FCC Test Site No.	718246
IC Test Site No.	4842E-1
Test Software	Radiated Emission Program-To Shenzhen v2.0

4. Equipment under Test (EUT) Information

Description of EUT:	Mobile phone
Main Model:	öwn SMART VALUE
Serial Model:	N/A
Date EUT received:	April 27, 2016
Test Date(s):	April 28 to May 10, 2016&May 19 to 20, 2016
Equipment Category :	PCE
Antenna Gain:	GSM850: -3dBi PCS1900: -1dBi UMTS-FDD Band V: -3dBi UMTS-FDD Band II: -1dBi Bluetooth/BLE/WIFI: -2dBi LTE Band IV: -3dBi LTE Band VII: -2dBi GPS:-2dBi
Type of Modulation:	GSM / GPRS: GMSK EGPRS: GMSK,8PSK UMTS-FDD: QPSK, 16QAM 802.11b/g/n: DSSS, OFDM Bluetooth: GFSK, $\pi/4$ DQPSK, 8DPSK BLE: GFSK LTE Band: QPSK, 16QAM GPS:BPSK

GSM850 TX: 824.2 ~ 848.8 MHz; RX: 869.2 ~ 893.8 MHz
 PCS1900 TX: 1850.2 ~ 1909.8 MHz; RX: 1930.2 ~ 1989.8 MHz
 UMTS-FDD Band V TX: 826.4 ~ 846.6 MHz; RX: 871.4 ~ 891.6 MHz
 UMTS-FDD Band II TX:1852.4 ~ 1907.6 MHz;
 RX: 1932.4 ~ 1987.6 MHz

RF Operating Frequency (ies):

WIFI:802.11b/g/n(20M): 2412-2462 MHz
 WIFI:802.11n(40M): 2422-2452 MHz
 Bluetooth& BLE: 2402-2480 MHz
 LTE Band IV TX: 1712.5 ~ 1752.5 MHz; RX : 2112.5 ~ 2152.5 MHz
 LTE Band VII TX: 2502.5 ~ 2567.5 MHz; RX : 2622.5 ~ 2687.5 MHz
 GPS RX:1575.42 MHz

GSM Voce: GSM850: 32.91dBm

PCS1900:30.52dB

GPRS:GSM850: 32.89 dBm

PCS1900: 30.51dBm

EGPRS MCS1:GSM850: 32.87 dBm

PCS1900: 30.48 dBm

Maximum Conducted

EGPRS MCS5:GSM850: 26.91 dBm

AV Power to Antenna:

PCS1900: 26.85 dBm

RMC: UMTS-FDD Band V : 23.82 dBm

UMTS-FDD Band II : 24.31 dBm

HSDPA:UMTS-FDD Band V : 22.61 dBm

UMTS-FDD Band II : 22.98 dBm

HSUPA:UMTS-FDD Band V : 22.91 dBm

UMTS-FDD Band II : 22.94 dBm

GSM Voce: GSM850: 27.61 dBm / ERP

PCS1900: 29.48 dBm / EIRP

GPRS:GSM850: 27.45 dBm / ERP

PCS1900: 29.32 dBm / EIRP

ERP/EIRP:

EGPRS:GSM850: 27.58 dBm / ERP

PCS1900: 29.24 dBm / EIRP

RMC: UMTS-FDD Band V : 18.68 dBm / ERP

UMTS-FDD Band II : 22.95 dBm / EIRP

HSUPA:UMTS-FDD Band V :18.65 dBm / ERP

UMTS-FDD Band II : 22.65 dBm / EIRP

Test Report	16070480-FCC-R1
Page	8 of 85

HSDPA:UMTS-FDD Band V : 18.72 dBm / ERP

UMTS-FDD Band II : 22.67 dBm / EIRP

GSM 850: 124CH

PCS1900: 299CH

UMTS-FDD Band V : 102CH

UMTS-FDD Band II : 277CH

Number of Channels:

WIFI :802.11b/g/n(20M): 11CH

WIFI :802.11n(40M): 7CH

Bluetooth: 79CH

BLE: 40CH

GPS:1CH

Port:

Power Port, Earphone Port, USB Port

Input Power: Adapter:
Model: OWN SMART VALUE
Input: AC 100-240V; 50/60Hz;0.2A
Output: DC 5.0V,1A
Battery:
Model: OWN SMART VALUE
Spec:3.8V,2100mAh,7.98Wh
Limited charger voltage :4.35V

Trade Name : **öwn**

GPRS/EGPRS Multi-slot class 8/10/12

FCC ID: 2ADA4VALUE

5. Test Summary

The product was tested in accordance with the following specifications.

All testing has been performed according to below product classification:

FCC Rules	Description of Test	Result
§ 1.1307; § 2.1093	RF Exposure (SAR)	Compliance
§2.1046; § 22.913(a); § 24.232(c);	RF Output Power	Compliance
§ 24.232 (d) ;	Peak-Average Ratio	Compliance
§ 2.1049; § 22.905; § 22.917; § 24.238;	99% & -26 dB Occupied Bandwidth	Compliance
§ 2.1051; § 22.917(a); § 24.238(a);	Spurious Emissions at Antenna Terminal	Compliance
§ 2.1053; § 22.917(a); § 24.238(a);	Field Strength of Spurious Radiation	Compliance
§ 22.917(a); § 24.238(a);	Out of band emission, Band Edge	Compliance
§ 2.1055; § 22.355; § 24.235;	Frequency stability vs. temperature Frequency stability vs. voltage	Compliance

Note: Testing was performed by configuring EUT to maximum output power status, the declared output power class for different

Measurement Uncertainty

Emissions		
Test Item	Description	Uncertainty
Band Edge and Radiated Spurious Emissions	Confidence level of approximately 95% (in the case where distributions are normal), with a coverage factor of 2 (for EUTs < 0.5m X 0.5m X 0.5m)	+5.6dB/-4.5dB
-	-	-

6. MEASUREMENTS, EXAMINATION AND DERIVED RESULTS

6.1 RF Exposure (SAR)

Test Result: Pass

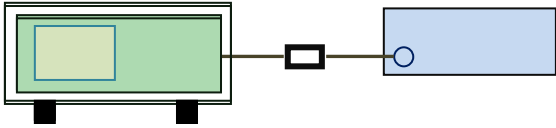
The EUT is a portable device, thus requires SAR evaluation;
Please refer to RF Exposure Evaluation Report: 16070480-FCC-H.

6.2 RF Output Power

Temperature	23°C
Relative Humidity	55%
Atmospheric Pressure	1003mbar
Test date :	May 03, 2016&May 20, 2016
Tested By :	Winnie Zhang

Requirement(s):

Spec	Item	Requirement	Applicable
§22.913 (a)	a)	ERP:38.45dBm	<input checked="" type="checkbox"/>
§24.232 (c)	b)	EIRP:33dBm	<input checked="" type="checkbox"/>

Test Setup	
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Test Procedure	<p>For Conducted Power:</p> <ul style="list-style-type: none"> - The transmitter output port was connected to base station. - Set EUT at maximum power through base station. - Select lowest, middle, and highest channels for each band and different test mode. <p>For ERP/EIRP:</p> <p>According with KDB 971168 v02r02</p> <ul style="list-style-type: none"> - The transmitter was placed on a wooden turntable, and it was transmitting into a non-radiating load which was also placed on the turntable. - 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. - The frequency range up to tenth harmonic of the fundamental frequency was investigated.
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Test Report	16070480-FCC-R1
Page	13 of 85

	<ul style="list-style-type: none"> - 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. - Spurious emissions in dB = 10 log (TX power in Watts/0.001) – the absolute level - Spurious attenuation limit in dB = 43 + 10 Log10 (power out in Watts).
Remark	
Result	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail

Test Data ☒ Yes ☐ N/A

Test Plot ☐ Yes (See below) ☒ N/A

Conducted Power

GSM Mode:

Burst Average Power (dBm);								
Band	GSM850				PCS1900			
Channel	128	190	251	Tune up Power tolerant	512	661	810	Tune up Power tolerant
Frequency (MHz)	824.2	836.6	848.8	/	1850.2	1880	1909.8	/
GSM Voice (1 uplink),GMSK	32.91	32.86	32.86	32.5±1	30.52	30.50	30.48	30.5±1
GPRS Multi-Slot Class 8 (1 uplink),GMSK	32.89	32.85	32.84	32.5±1	30.51	30.49	30.45	30.5±1
GPRS Multi-Slot Class 10 (2 uplink) GMSK	32.08	32.14	32.17	32±1	29.96	29.91	29.92	30±1
GPRS Multi-Slot Class 12 (4 uplink) GMSK	29.14	29.16	29.12	29±1	27.09	27.06	27.11	27±1
EGPRS Multi-Slot Class 8 (1 uplink) GMSK MCS1	32.87	32.84	32.79	32.5±1	30.48	30.47	30.43	30.5±1
EGPRS Multi-Slot Class 10 (2 uplink) GMSK MCS1	32.07	32.12	32.12	32±1	29.94	29.89	29.91	30±1
EGPRS Multi-Slot Class 12 (4 uplink) GMSK MCS1	29.07	29.10	29.03	29±1	27.01	26.99	27.04	27±1
EGPRS Multi-Slot Class 8 (1 uplink) 8PSK MCS5	26.91	26.76	26.45	26.5±1	26.85	26.62	27.11	27±1
EGPRS Multi-Slot Class 10 (2 uplink) 8PSK MCS5	25.76	25.47	25.08	25.5±1	25.31	25.57	25.87	25.5±1
EGPRS Multi-Slot Class 12 (4 uplink) 8PSK MCS5	23.16	23.07	22.94	23±1	22.93	23.14	23.24	23±1

Test Report	16070480-FCC-R1
Page	15 of 85

Remark :

GPRS, CS1 coding scheme.

EGPRS, MCS1 coding scheme.

EGPRS, MCS5 coding scheme.

Multi-Slot Class 8 , Support Max 4 downlink, 1 uplink , 5 working link

Multi-Slot Class 10 , Support Max 4 downlink, 2 uplink , 5 working link

Multi-Slot Class 12 , Support Max 4 downlink, 4 uplink , 5 working link

Note: Since GSM mode has higher power, so the test items below were not performed to GPRS and EGPRS mode.

UMTS Mode:

UMTS-FDD Band V

Band/ Time Slot configuration	Channel	Frequency	Average power (dBm)	Tune up Power tolerant
RMC 12.2kbps	4132	826.4	23.77	23±1
	4175	835	23.82	23±1
	4233	846.6	23.44	23±1
HSDPA Subtest1	4132	826.4	22.36	22.3±1
	4175	835	22.45	22.3±1
	4233	846.6	22.51	22.3±1
HSDPA Subtest2	4132	826.4	22.22	22.3±1
	4175	835	22.35	22.3±1
	4233	846.6	22.46	22.3±1
HSDPA Subtest3	4132	826.4	22.58	22.3±1
	4175	835	22.46	22.3±1
	4233	846.6	22.67	22.3±1
HSDPA Subtest4	4132	826.4	22.31	22.3±1
	4175	835	22.35	22.3±1
	4233	846.6	22.65	22.3±1
HSUPA Subtest1	4132	826.4	22.53	22.3±1
	4175	835	22.73	22.3±1
	4233	846.6	22.51	22.3±1
HSUPA Subtest2	4132	826.4	22.34	22.3±1
	4175	835	22.51	22.3±1
	4233	846.6	22.61	22.3±1
HSUPA Subtest3	4132	826.4	22.63	22.3±1
	4175	835	22.53	22.3±1
	4233	846.6	22.82	22.3±1
HSUPA Subtest4	4132	826.4	22.91	22.3±1
	4175	835	22.33	22.3±1
	4233	846.6	22.34	22.3±1
HSUPA Subtest5	4132	826.4	22.19	22.3±1
	4175	835	22.28	22.3±1
	4233	846.6	22.37	22.3±1

UMTS-FDD Band II

Band/ Time Slot configuration	Channel	Frequency	Average power (dBm)	Tune up Power tolerant
RMC 12.2kbps	9262	1852.4	24.12	23.5±1
	9400	1880	23.96	23.5±1
	9538	1907.6	24.31	23.5±1
HSDPA Subtest1	9262	1852.4	22.98	22.5±1
	9400	1880	22.36	22.5±1
	9538	1907.6	22.78	22.5±1
HSDPA Subtest2	9262	1852.4	22.93	22.5±1
	9400	1880	22.84	22.5±1
	9538	1907.6	22.77	22.5±1
HSDPA Subtest3	9262	1852.4	22.88	22.5±1
	9400	1880	22.85	22.5±1
	9538	1907.6	22.84	22.5±1
HSDPA Subtest4	9262	1852.4	22.68	22.5±1
	9400	1880	22.69	22.5±1
	9538	1907.6	22.77	22.5±1
HSUPA Subtest1	9262	1852.4	22.68	22.5±1
	9400	1880	22.59	22.5±1
	9538	1907.6	22.94	22.5±1
HSUPA Subtest2	9262	1852.4	22.68	22.5±1
	9400	1880	22.77	22.5±1
	9538	1907.6	22.69	22.5±1
HSUPA Subtest3	9262	1852.4	22.59	22.5±1
	9400	1880	22.56	22.5±1
	9538	1907.6	22.68	22.5±1
HSUPA Subtest4	9262	1852.4	22.69	22.5±1
	9400	1880	22.78	22.5±1
	9538	1907.6	22.84	22.5±1
HSUPA Subtest5	9262	1852.4	22.93	22.5±1
	9400	1880	22.67	22.5±1
	9538	1907.6	22.78	22.5±1

GSM Mode:

ERP & EIRP

ERP for Cellular Band (Part 22H)

Frequency (MHz)	Substituted level (dBm)	Antenna Polarization	Antenna Gain correction (dBi)	Cable Loss (dB)	Absolute Level (dBm)	Limit (dBm)
824.2	21.28	V	6.8	0.53	27.55	38.45
824.2	19.63	H	6.8	0.53	25.90	38.45
836.6	21.31	V	6.8	0.53	27.58	38.45
836.6	19.57	H	6.8	0.53	25.84	38.45
848.8	21.24	V	6.9	0.53	27.61	38.45
848.8	19.62	H	6.9	0.53	25.99	38.45

EIRP for PCS Band (Part 24E)

Frequency (MHz)	Substituted level (dBm)	Antenna Polarization	Antenna Gain correction (dBi)	Cable Loss (dB)	Absolute Level (dBm)	Limit (dBm)
1850.2	22.43	V	7.88	0.85	29.46	33
1850.2	20.98	H	7.88	0.85	28.01	33
1880	22.39	V	7.88	0.85	29.42	33
1880	20.94	H	7.88	0.85	27.97	33
1909.8	22.47	V	7.86	0.85	29.48	33
1909.8	20.93	H	7.86	0.85	27.94	33

GPRS Mode:

ERP & EIRP

ERP for Cellular Band (Part 22H)

Frequency (MHz)	Substituted level (dBm)	Antenna Polarization	Antenna Gain correction (dBi)	Cable Loss (dB)	Absolute Level (dBm)	Limit (dBm)
824.2	21.06	V	6.8	0.53	27.33	38.45
824.2	19.32	H	6.8	0.53	25.59	38.45
836.6	21.15	V	6.8	0.53	27.42	38.45
836.6	19.41	H	6.8	0.53	25.68	38.45
848.8	21.08	V	6.9	0.53	27.45	38.45
848.8	19.34	H	6.9	0.53	25.71	38.45

EIRP for PCS Band (Part 24E)

Frequency (MHz)	Substituted level (dBm)	Antenna Polarization	Antenna Gain correction (dBi)	Cable Loss (dB)	Absolute Level (dBm)	Limit (dBm)
1850.2	22.28	V	7.88	0.85	29.31	33
1850.2	20.51	H	7.88	0.85	27.54	33
1880	22.23	V	7.88	0.85	29.26	33
1880	20.56	H	7.88	0.85	27.59	33
1909.8	22.31	V	7.86	0.85	29.32	33
1909.8	20.57	H	7.86	0.85	27.58	33

EGPRS Mode:

ERP & EIRP

ERP for Cellular Band (Part 22H)

Frequency (MHz)	Substituted level (dBm)	Antenna Polarization	Antenna Gain correction (dBi)	Cable Loss (dB)	Absolute Level (dBm)	Limit (dBm)
824.2	21.18	V	6.8	0.53	27.45	38.45
824.2	19.42	H	6.8	0.53	25.69	38.45
836.6	21.15	V	6.8	0.53	27.42	38.45
836.6	19.39	H	6.8	0.53	25.66	38.45
848.8	21.21	V	6.9	0.53	27.58	38.45
848.8	19.44	H	6.9	0.53	25.81	38.45

EIRP for PCS Band (Part 24E)

Frequency (MHz)	Substituted level (dBm)	Antenna Polarization	Antenna Gain correction (dBi)	Cable Loss (dB)	Absolute Level (dBm)	Limit (dBm)
1850.2	22.16	V	7.88	0.85	29.19	33
1850.2	20.43	H	7.88	0.85	27.46	33
1880	22.11	V	7.88	0.85	29.14	33
1880	20.38	H	7.88	0.85	27.41	33
1909.8	22.23	V	7.86	0.85	29.24	33
1909.8	20.45	H	7.86	0.85	27.46	33

RMC Mode:

ERP for UMTS-FDD Band V (Part 22H)

Frequency (MHz)	Substituted level (dBm)	Antenna Polarization	Antenna Gain correction (dBi)	Cable Loss (dB)	Absolute Level (dBm)	Limit (dBm)
826.4	12.39	V	6.8	0.53	18.66	38.45
826.4	11.65	H	6.8	0.53	17.92	38.45
835	12.41	V	6.8	0.53	18.68	38.45
835	11.67	H	6.8	0.53	17.94	38.45
846.6	12.24	V	6.9	0.53	18.61	38.45
846.6	11.49	H	6.9	0.53	17.86	38.45

EIRP for UMTS-FDD Band II (Part 24E)

Frequency (MHz)	Substituted level (dBm)	Antenna Polarization	Antenna Gain correction (dBi)	Cable Loss (dB)	Absolute Level (dBm)	Limit (dBm)
1852.4	15.78	V	7.88	0.85	22.81	33
1852.4	14.43	H	7.88	0.85	21.46	33
1880	15.51	V	7.88	0.85	22.54	33
1880	14.38	H	7.88	0.85	21.41	33
1907.6	15.94	V	7.86	0.85	22.95	33
1907.6	14.57	H	7.86	0.85	21.58	33

HSDPA Mode:

ERP for UMTS-FDD Band V (Part 22H)

Frequency (MHz)	Substituted level (dBm)	Antenna Polarization	Antenna Gain correction (dBi)	Cable Loss (dB)	Absolute Level (dBm)	Limit (dBm)
826.4	12.25	V	6.8	0.53	18.52	38.45
826.4	11.49	H	6.8	0.53	17.76	38.45
835	12.31	V	6.8	0.53	18.58	38.45
835	11.55	H	6.8	0.53	17.82	38.45
846.6	12.28	V	6.9	0.53	18.65	38.45
846.6	11.51	H	6.9	0.53	17.88	38.45

EIRP for UMTS-FDD Band II (Part 24E)

Frequency (MHz)	Substituted level (dBm)	Antenna Polarization	Antenna Gain correction (dBi)	Cable Loss (dB)	Absolute Level (dBm)	Limit (dBm)
826.4	15.59	V	7.88	0.85	22.62	33
826.4	14.35	H	7.88	0.85	21.38	33
835	15.62	V	7.88	0.85	22.65	33
835	14.38	H	7.88	0.85	21.41	33
846.6	15.53	V	7.86	0.85	22.54	33
846.6	14.34	H	7.86	0.85	21.35	33

HSUPA Mode:

ERP for UMTS-FDD Band V (Part 22H)

Frequency (MHz)	Substituted level (dBm)	Antenna Polarization	Antenna Gain correction (dBi)	Cable Loss (dB)	Absolute Level (dBm)	Limit (dBm)
826.4	12.34	V	6.8	0.53	18.61	38.45
826.4	11.49	H	6.8	0.53	17.76	38.45
835	12.27	V	6.8	0.53	18.54	38.45
835	11.44	H	6.8	0.53	17.71	38.45
846.6	12.35	V	6.9	0.53	18.72	38.45
846.6	11.31	H	6.9	0.53	17.68	38.45

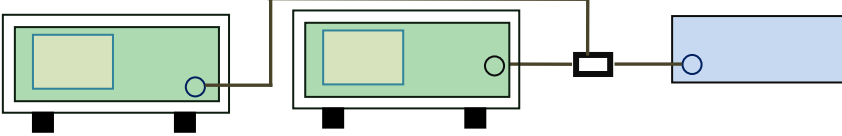
EIRP for UMTS-FDD Band II (Part 24E)

Frequency (MHz)	Substituted level (dBm)	Antenna Polarization	Antenna Gain correction (dBi)	Cable Loss (dB)	Absolute Level (dBm)	Limit (dBm)
826.4	15.64	V	7.88	0.85	22.67	33
826.4	14.42	H	7.88	0.85	21.45	33
835	15.58	V	7.88	0.85	22.61	33
835	14.37	H	7.88	0.85	21.40	33
846.6	15.63	V	7.86	0.85	22.64	33
846.6	14.48	H	7.86	0.85	21.49	33

6.3 Peak-Average Ratio

Temperature	23°C
Relative Humidity	55%
Atmospheric Pressure	1003mbar
Test date :	May 03, 2016&May 20, 2016
Tested By :	Winnie Zhang

Requirement(s):

Spec	Item	Requirement	Applicable
§24.232(d)	a)	The peak-to-average ratio (PAR) of the transmission may not exceed 13 dB.	<input checked="" type="checkbox"/>
Test Setup			
Test Procedure	<p>According with KDB 971168 v02r02</p> <ol style="list-style-type: none"> 1. The signal analyzer' s CCDF measurement profile is enabled 2. Frequency = carrier center frequency 3. Measurement BW > Emission bandwidth of signal 4. The signal analyzer was set to collect one million samples to generate the CCDF curve 5. The measurement interval was set depending on the type of signal analyzed. For continuous signals (>98% duty cycle), the measurement interval was set to 1ms. For burst transmissions, the spectrum analyzer is set to use an internal “ RF Burst” trigger that is synced with an incoming pulse and the measurement interval is set to less than the duration of the “ on time” of one burst to ensure that energy is only captured during a time in which the transmitter is operating at maximum power 		
Remark			
Result	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail		

Test Data ☒ Yes ☐ N/A

Test Plot ☐ Yes (See below) ☒ N/A

GSM: GSM 1900 PK-AV POWER (PART 24E)

Frequency (MHz)	Conducted power(dBm)		Peak-Average Ratio(PAR)
	Peak	Average	
1850.2	30.68	30.52	0.16
1880	30.61	30.50	0.11
1909.8	30.56	30.48	0.08

GPRS 1900 PK-AV POWER (PART 24E)

Frequency (MHz)	Conducted power(dBm)		Peak-Average Ratio(PAR)
	Peak	Average	
1850.2	30.43	30.67	-0.24
1880	30.72	30.24	0.48
1909.8	30.33	30.55	-0.22

EGPRS 1900 PK-AV POWER (PART 24E)

Frequency (MHz)	Conducted power(dBm)		Peak-Average Ratio(PAR)
	Peak	Average	
1850.2	30.25	30.42	-0.17
1880	30.58	30.60	-0.02
1909.8	30.47	30.32	0.15

RMC: UMTS-FDD Band II PK-AV POWER (PART 24E)

Frequency (MHz)	Conducted power(dBm)		Peak-Average Ratio(PAR)
	Peak	Average	
1852.4	26.77	24.12	2.65
1880	26.84	23.96	2.88
1907.6	26.78	24.31	2.47

HSDPA : UMTS-FDD Band II PK-AV POWER (PART 24E)

Frequency (MHz)	Conducted power(dBm)		Peak-Average Ratio(PAR)
	Peak	Average	
1852.4	26.76	24.46	2.30
1880	26.35	23.80	2.55
1907.6	26.68	24.59	2.09

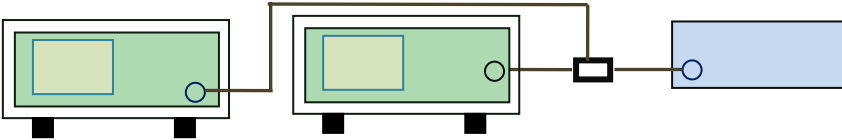
HSUPA : UMTS-FDD Band II PK-AV POWER (PART 24E)

Frequency (MHz)	Conducted power(dBm)		Peak-Average Ratio(PAR)
	Peak	Average	
1852.4	26.51	24.33	2.18
1880	26.74	23.75	2.99
1907.6	26.86	24.46	2.40

6.4 Occupied Bandwidth

Temperature	25°C
Relative Humidity	52%
Atmospheric Pressure	1028mbar
Test date :	April 28, 2016&May 19 to 20, 2016
Tested By :	Winnie Zhang

Requirement(s):

Spec	Item	Requirement	Applicable
§2.1049, §22.917, §22.905 §24.238	a)	99% Occupied Bandwidth(kHz)	<input checked="" type="checkbox"/>
	b)	26 dB Bandwidth(kHz)	<input checked="" type="checkbox"/>
Test Setup			
Test Procedure	<ul style="list-style-type: none"> - The EUT was connected to Spectrum Analyzer and Base Station via power divider. - The 99% and 26 dB occupied bandwidth (BW) of the middle channel for the highest RF powers. 		
Remark			
Result	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail		

Test Data ☒ Yes ☐ N/A

Test Plot ☒ Yes (See below) ☐ N/A

GSM Voice:

Cellular Band (Part 22H) result

Channel	Frequency (MHz)	99% Occupied Bandwidth (kHz)	26 dB Bandwidth (kHz)
128	824.2	244.5455	324.014
190	836.6	247.8763	321.503
251	848.8	247.3145	318.964

PCS Band (Part 24E) result

Channel	Frequency (MHz)	99% Occupied Bandwidth (kHz)	26 dB Bandwidth (kHz)
512	1850.2	246.2137	319.468
661	1880.0	245.7225	318.231
810	1909.8	247.1392	318.426

GPRS Mode:

Cellular Band (Part 22H) result

Channel	Frequency (MHz)	99% Occupied Bandwidth (kHz)	26 dB Bandwidth (kHz)
128	824.2	246.3500	314.565
190	836.6	247.1136	316.616
251	848.8	245.3455	318.724

PCS Band (Part 24E) result

Channel	Frequency (MHz)	99% Occupied Bandwidth (kHz)	26 dB Bandwidth (kHz)
512	1850.2	244.5282	310.597
661	1880.0	244.3574	316.370
810	1909.8	246.8683	321.115

EGPRS Mode:

Cellular Band (Part 22H) result

Channel	Frequency (MHz)	99% Occupied Bandwidth (kHz)	26 dB Bandwidth (kHz)
128	824.2	244.8561	323.613
190	836.6	246.0306	315.675
251	848.8	246.8797	312.730

PCS Band (Part 24E) result

Channel	Frequency (MHz)	99% Occupied Bandwidth (kHz)	26 dB Bandwidth (kHz)
512	1850.2	244.1002	313.326
661	1880.0	240.8120	287.775
810	1909.8	247.4066	317.555

RMC Mode:

UMTS-FDD Band V (Part 22H)

Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)	26 dB Bandwidth (MHz)
4132	826.4	4.2216	4.868
4175	835.0	4.2326	4.911
4233	846.6	4.1958	4.860

UMTS-FDD Band II (Part 24E)

Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)	26 dB Bandwidth (MHz)
9262	1852.4	4.1950	4.858
9400	1880.0	4.2253	4.924
9538	1907.6	4.2232	4.845

HSDPA Mode:

UMTS-FDD Band V (Part 22H)

Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)	26 dB Bandwidth (MHz)
4132	826.4	4.2162	4.901
4175	835.0	4.2188	4.893
4233	846.6	4.1802	4.847

UMTS-FDD Band II (Part 24E)

Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)	26 dB Bandwidth (MHz)
9262	1852.4	4.2110	4.859
9400	1880.0	4.2102	4.902
9538	1907.6	4.2040	4.871

HSUPA Mode:

UMTS-FDD Band V (Part 22H)

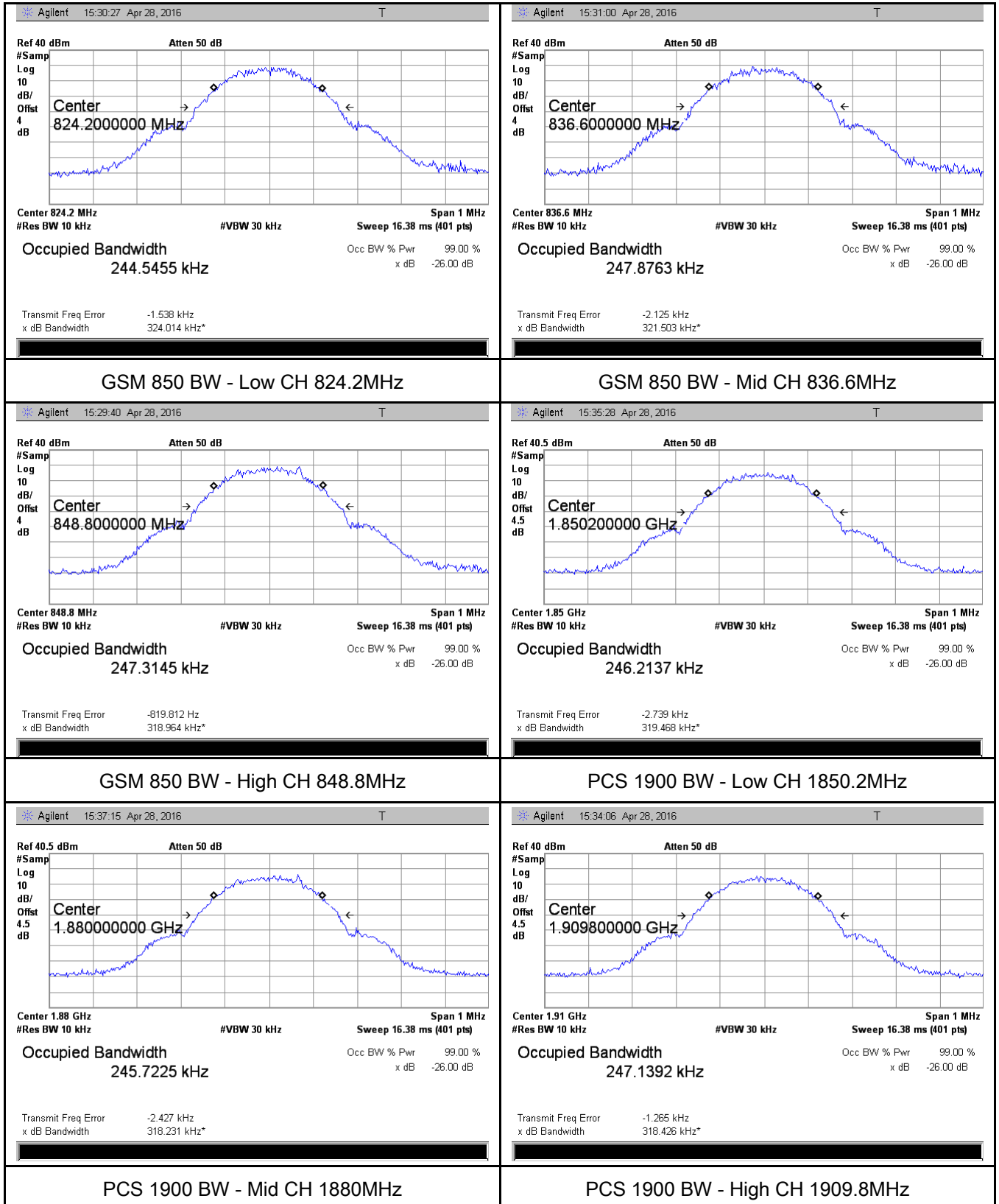
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)	26 dB Bandwidth (MHz)
4132	826.4	4.1943	4.885
4175	835.0	4.2358	4.963
4233	846.6	4.1936	4.883

UMTS-FDD Band II (Part 24E)

Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)	26 dB Bandwidth (MHz)
9262	1852.4	4.2269	4.910
9400	1880.0	4.2286	4.876
9538	1907.6	4.2134	4.874

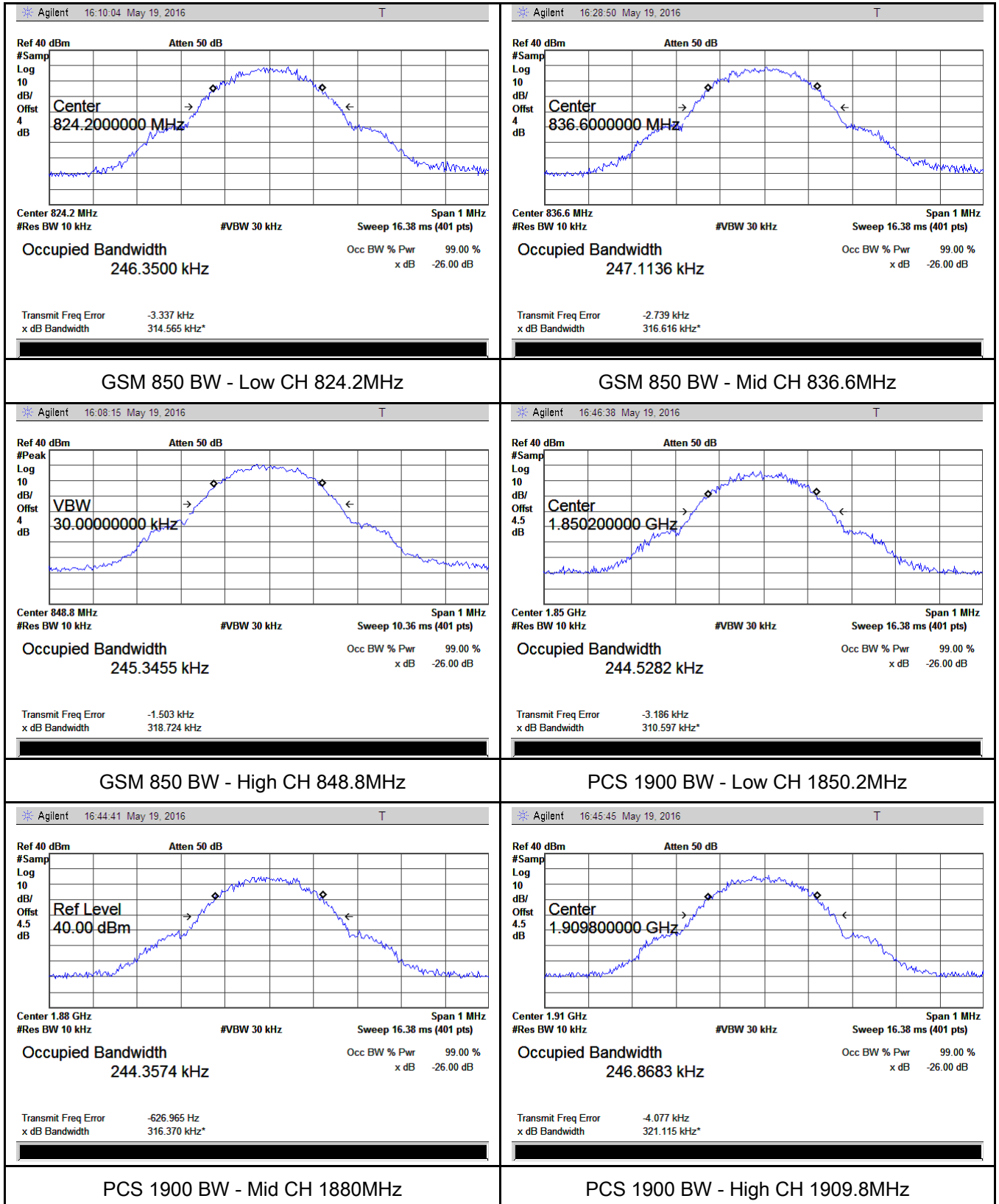
GSM Mode:

Test Plots



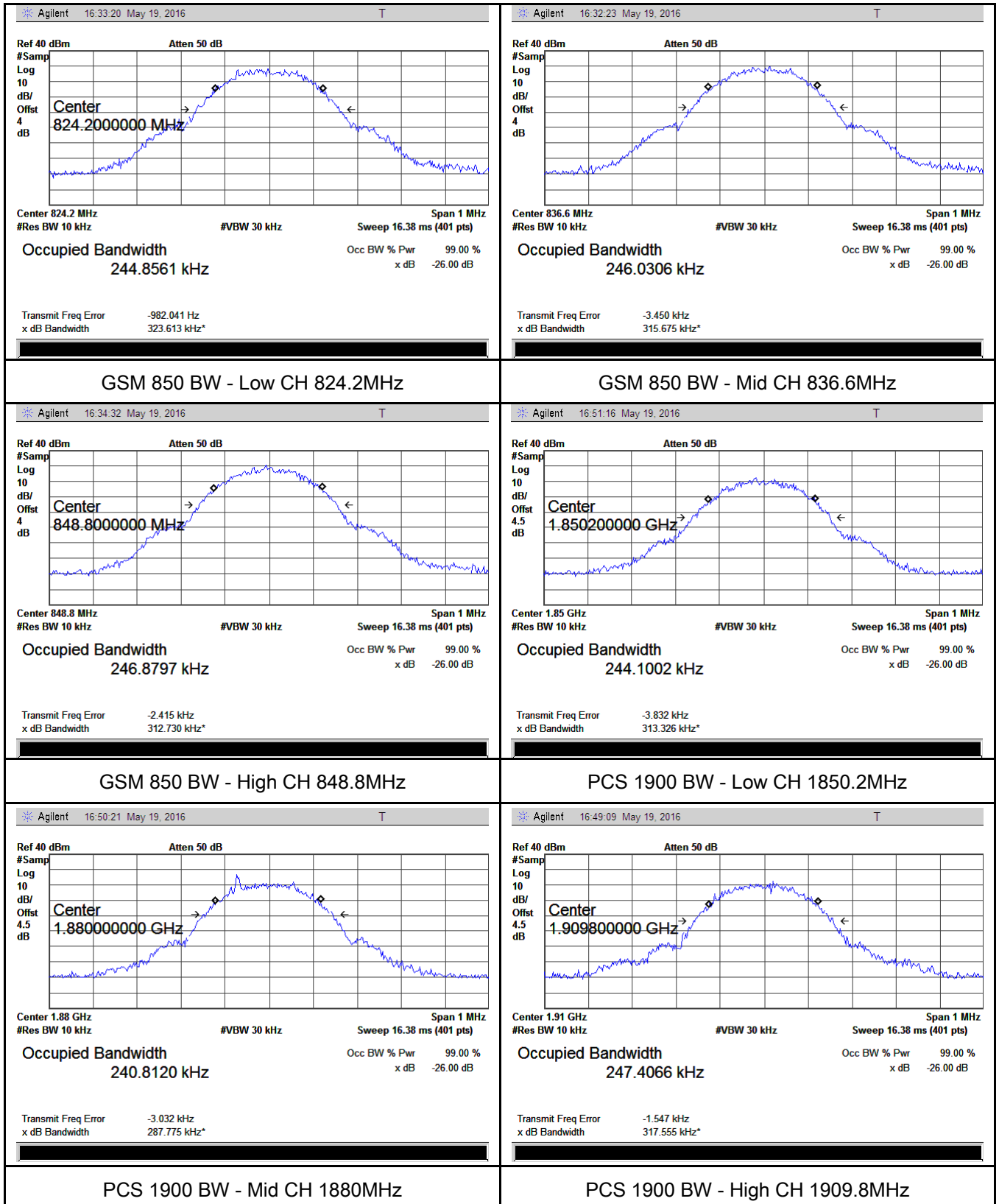
GPRS Mode:

Test Plots



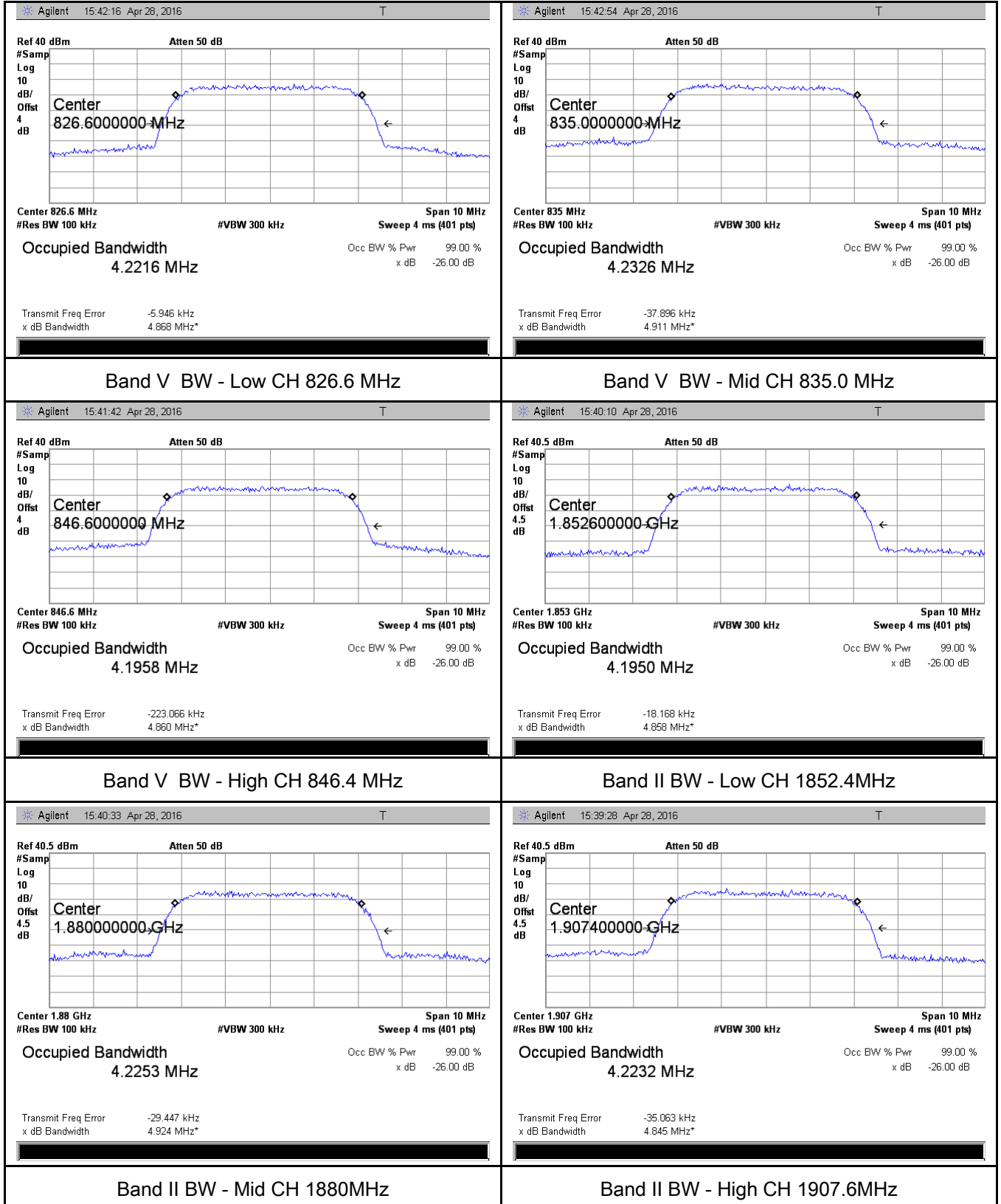
EGPRS Mode:

Test Plots



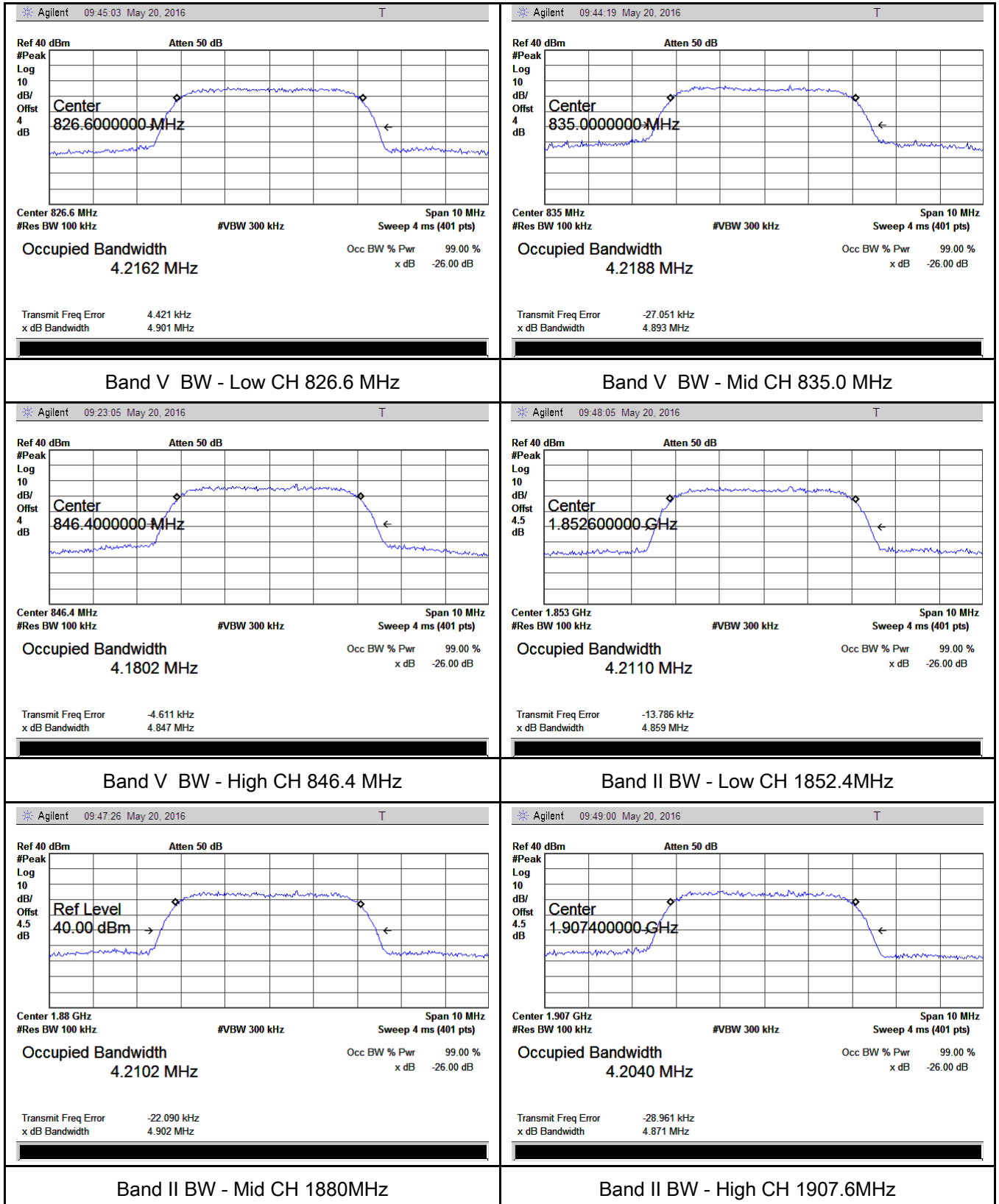
RMC Mode:

Test Plots



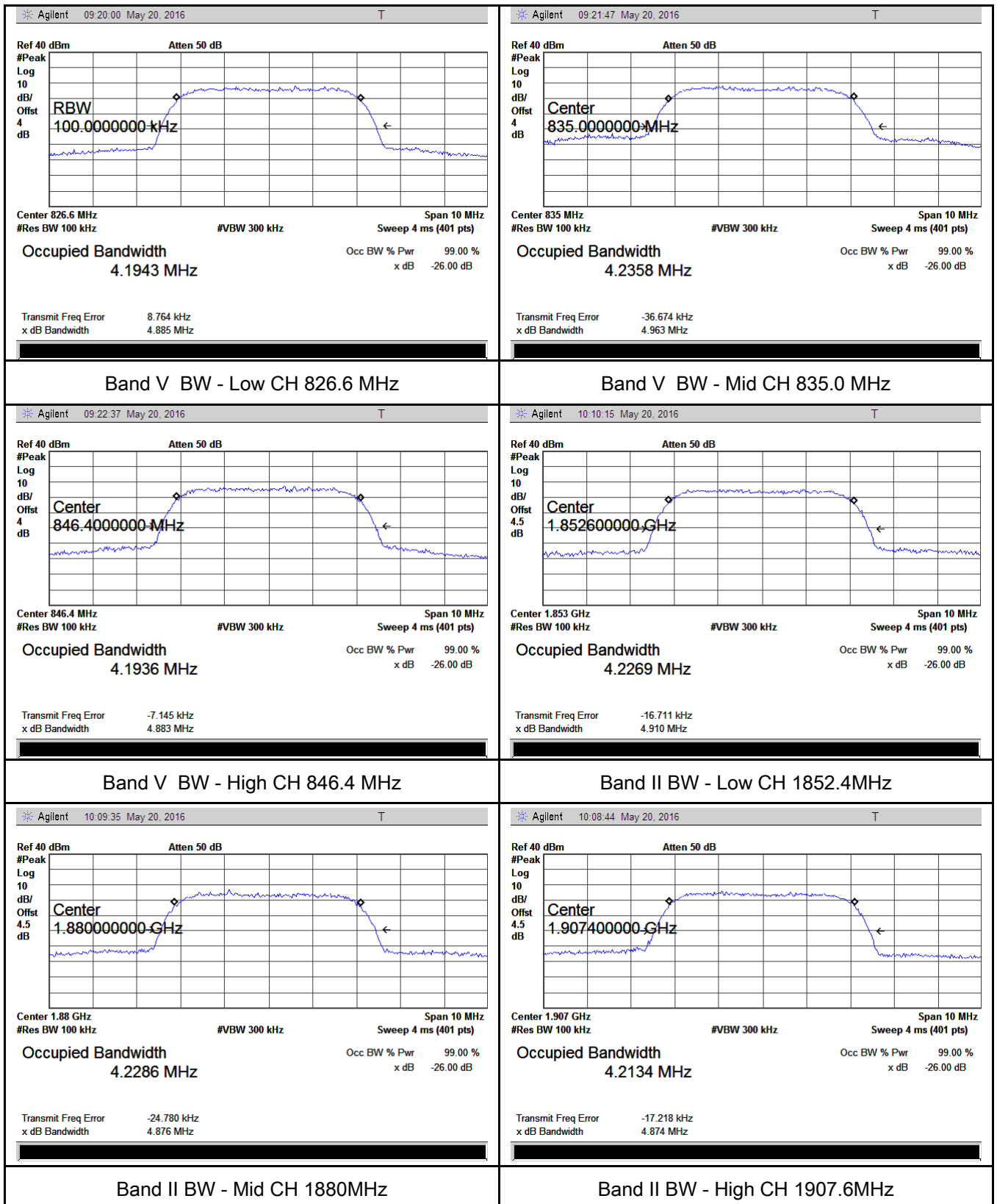
HSDPA Mode:

Test Plots



HSUPA Mode:

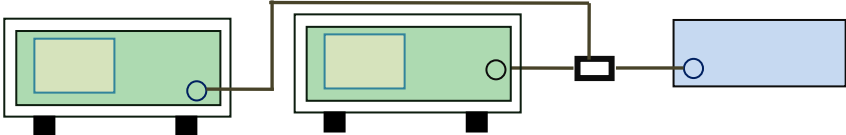
Test Plots



6.5 Spurious Emissions at Antenna Terminals

Temperature	25°C
Relative Humidity	52%
Atmospheric Pressure	1028mbar
Test date :	April 28, 2016&May 20, 2016
Tested By :	Winnie Zhang

Requirement(s):

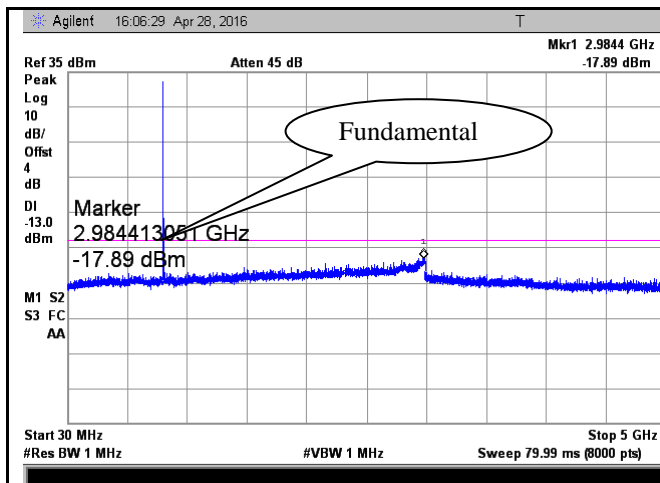
Spec	Item	Requirement	Applicable
§2.1051, §22.917(a)& §24.238(a)	a)	The power of any emission outside of the authorized operating frequency ranges must be lower than the transmitter power (P) by a factor of at least $43 + 10 \log (P)$ dB	<input checked="" type="checkbox"/>
Test Setup			
Test Procedure	<ul style="list-style-type: none"> - The EUT was connected to Spectrum Analyzer and Base Station via power divider. - The Band Edges of low and high channels for the highest RF powers were measured. - Setting RBW as roughly BW/100. 		
Remark			
Result	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail		

Test Data ☒ Yes ☐ N/A
 Test Plot ☒ Yes (See below) ☐ N/A

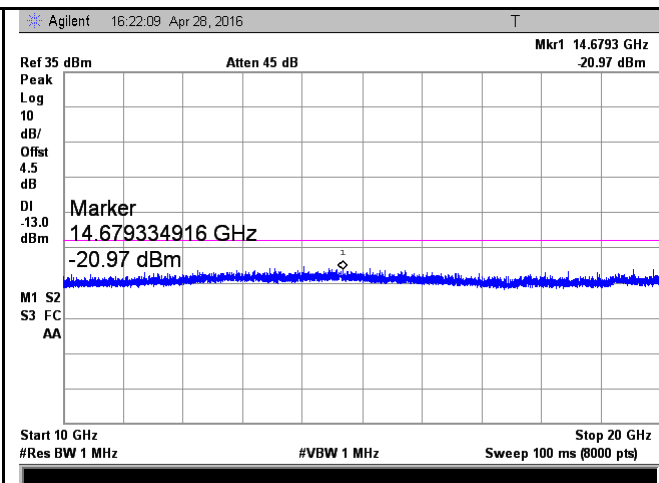
GSM Mode:

Test Plots

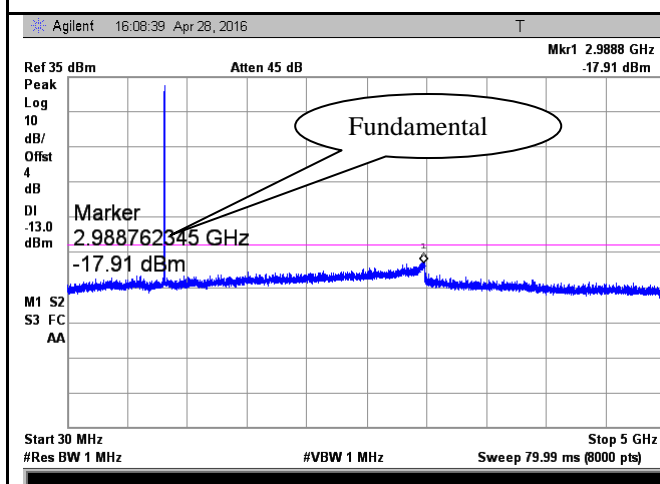
Cellular Band (Part 22H) result



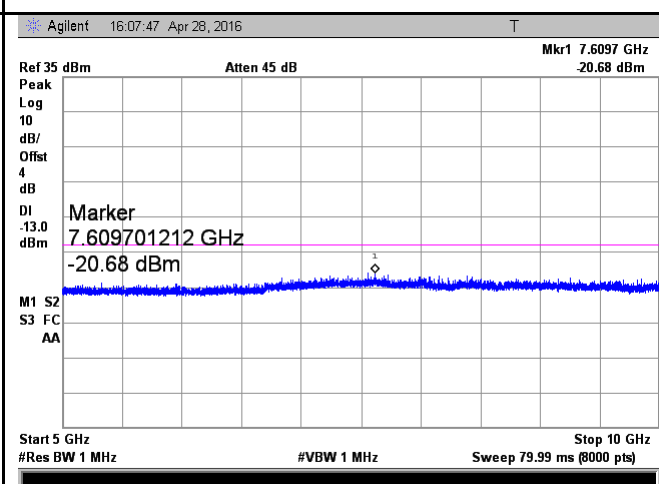
GSM 850 - Low Channel-1



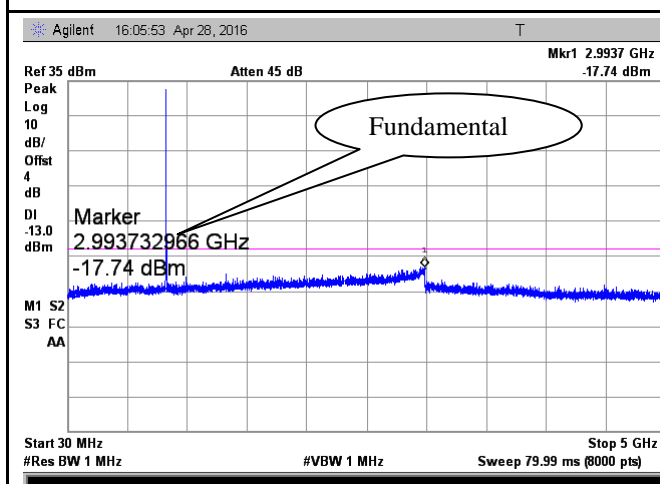
GSM 850 - Low Channel-2



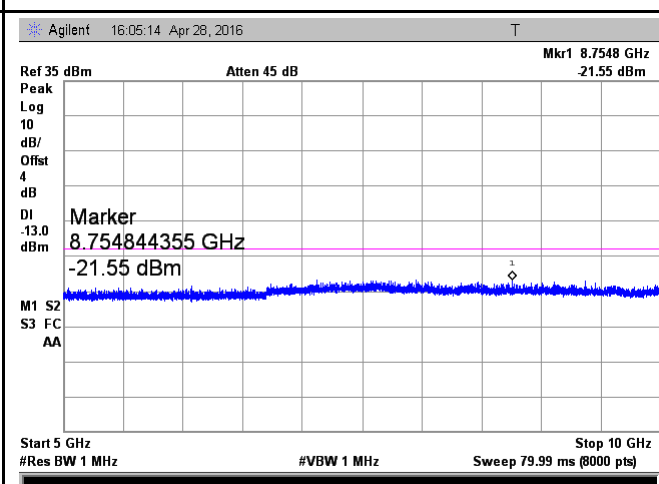
GSM 850 Middle Channel-1



GSM 850 Middle Channel-2

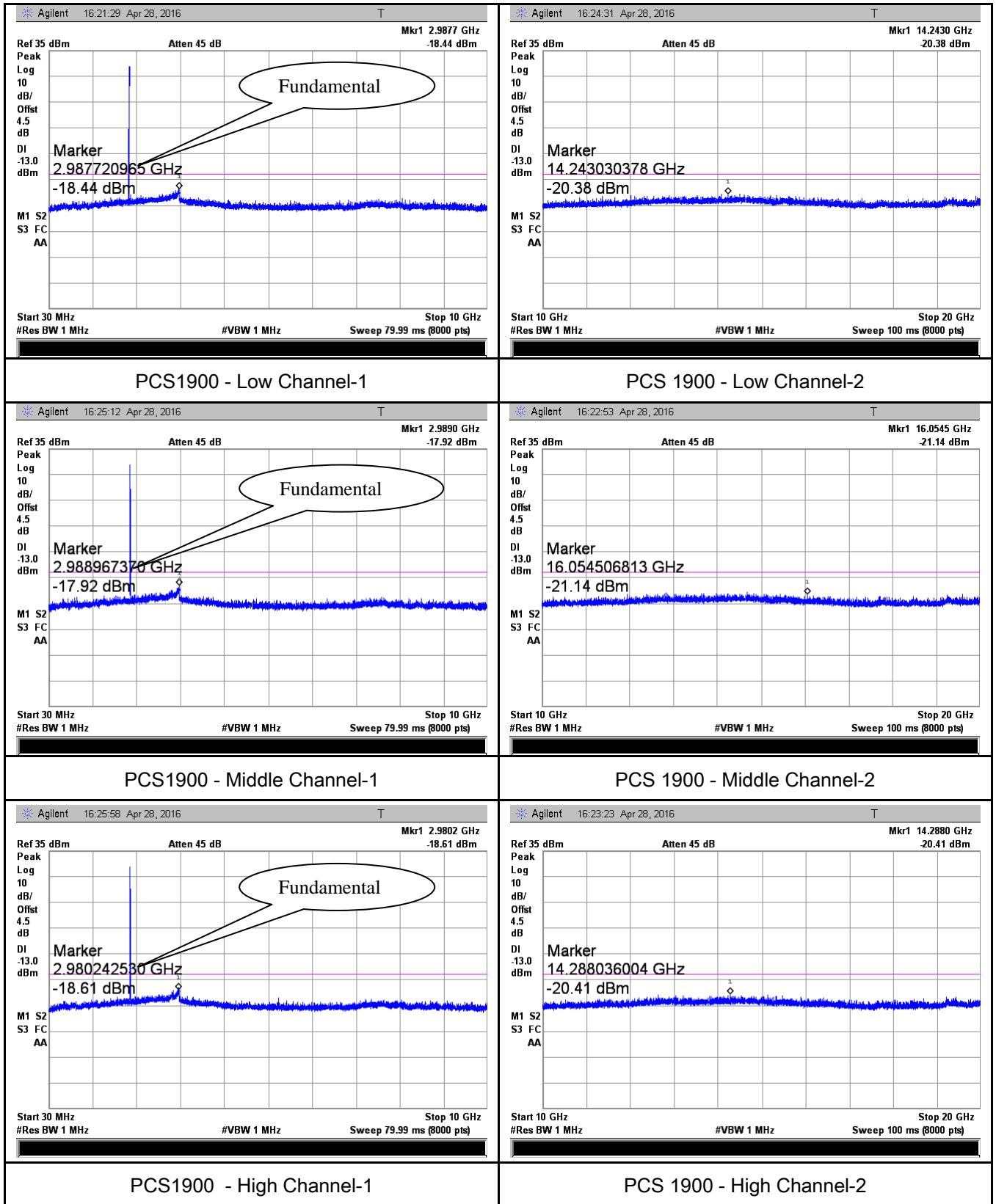


GSM 850 - High Channel-1



GSM 850 - High Channel-2

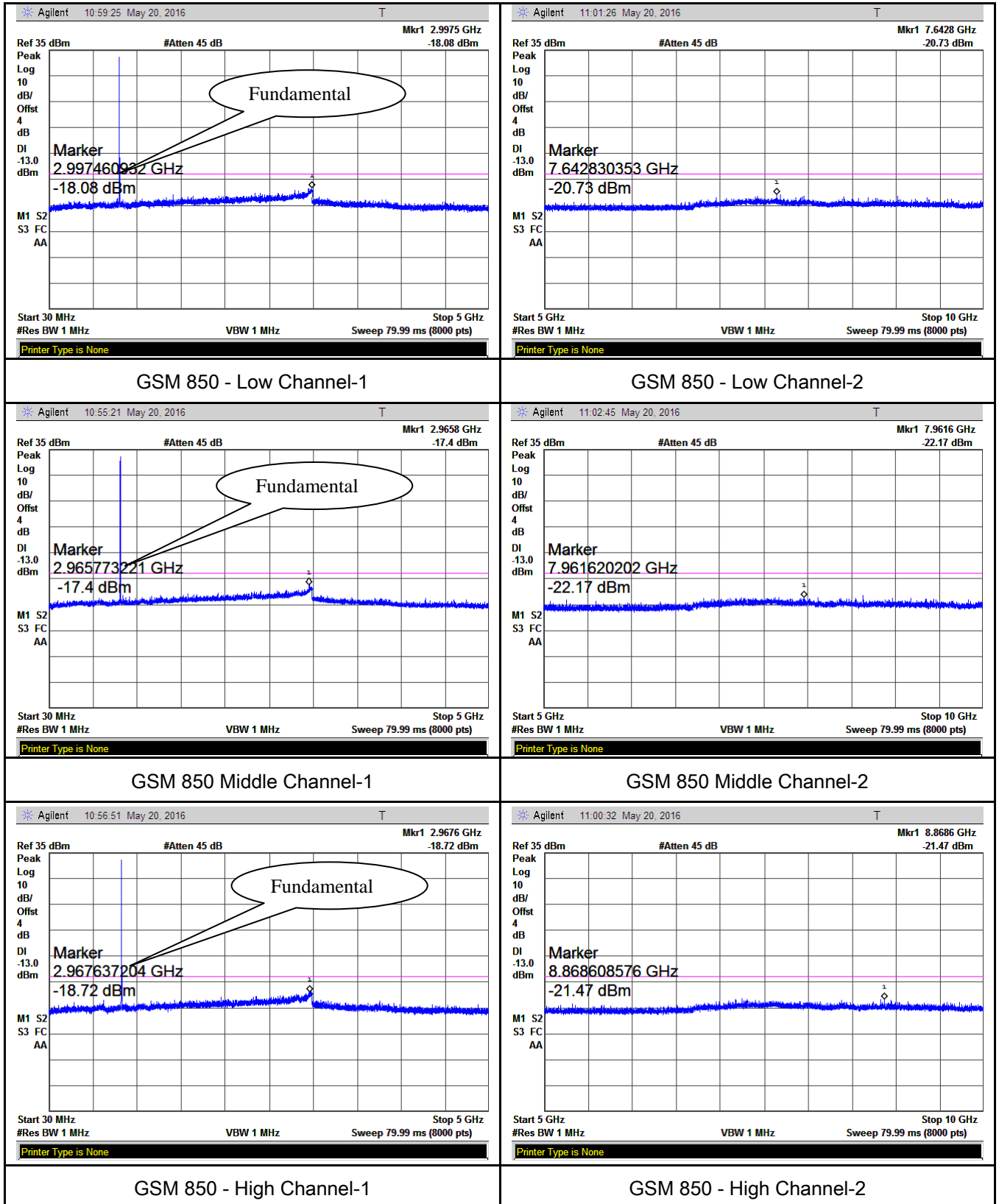
PCS Band (Part24E) result



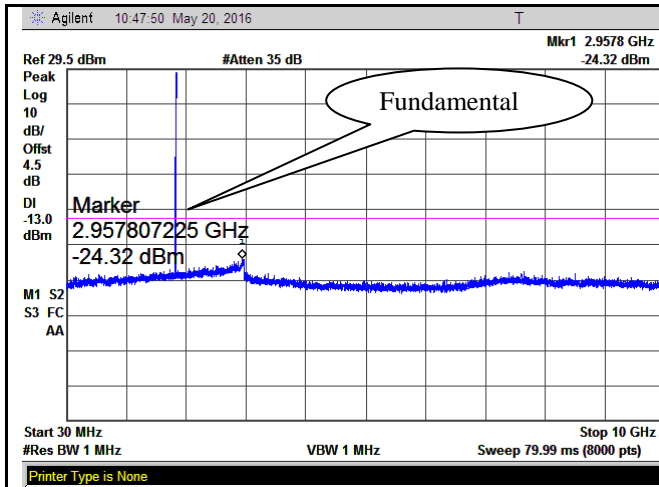
GPRS Mode:

Test Plots

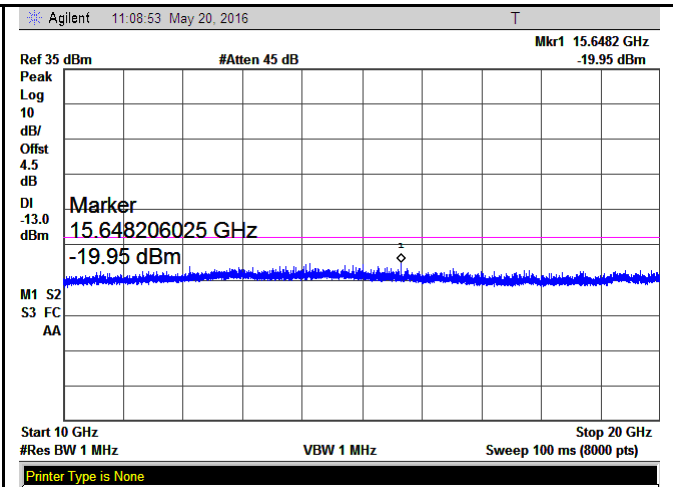
Cellular Band (Part 22H) result



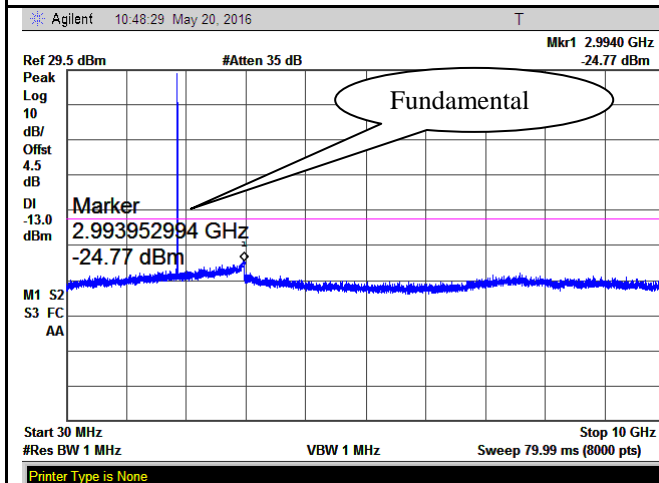
PCS Band (Part24E) result



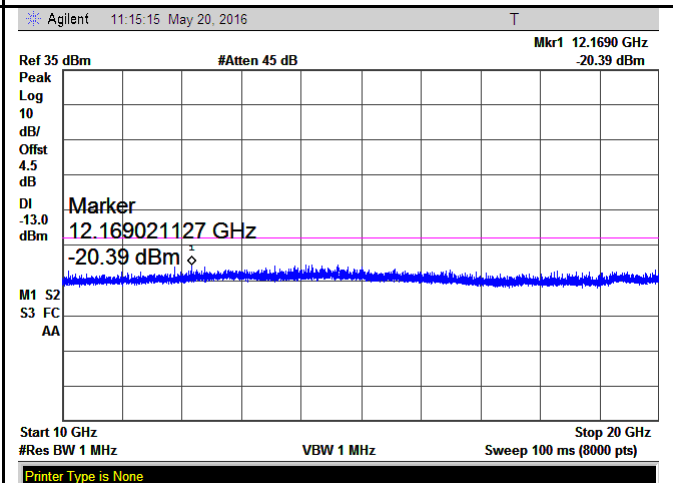
PCS1900 - Low Channel-1



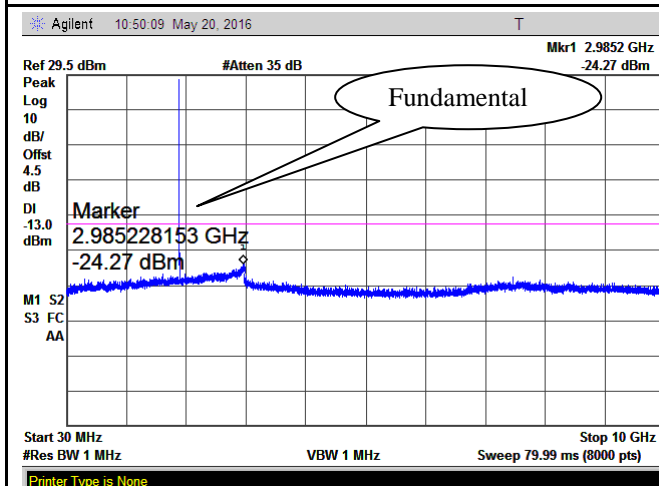
PCS 1900 - Low Channel-2



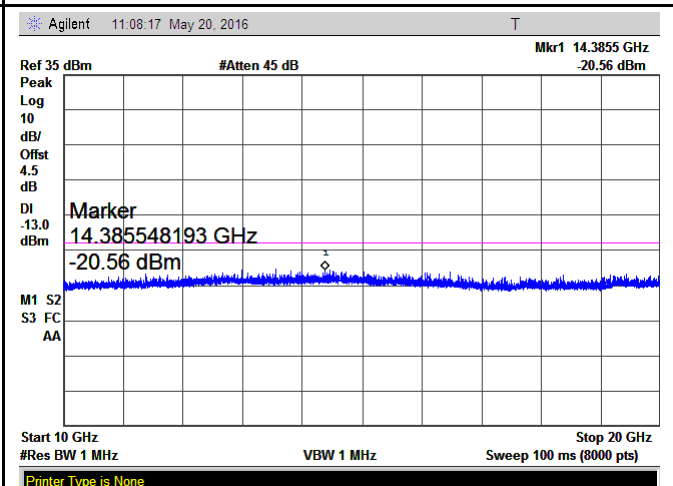
PCS1900 - Middle Channel-1



PCS 1900 - Middle Channel-2



PCS1900 - High Channel-1

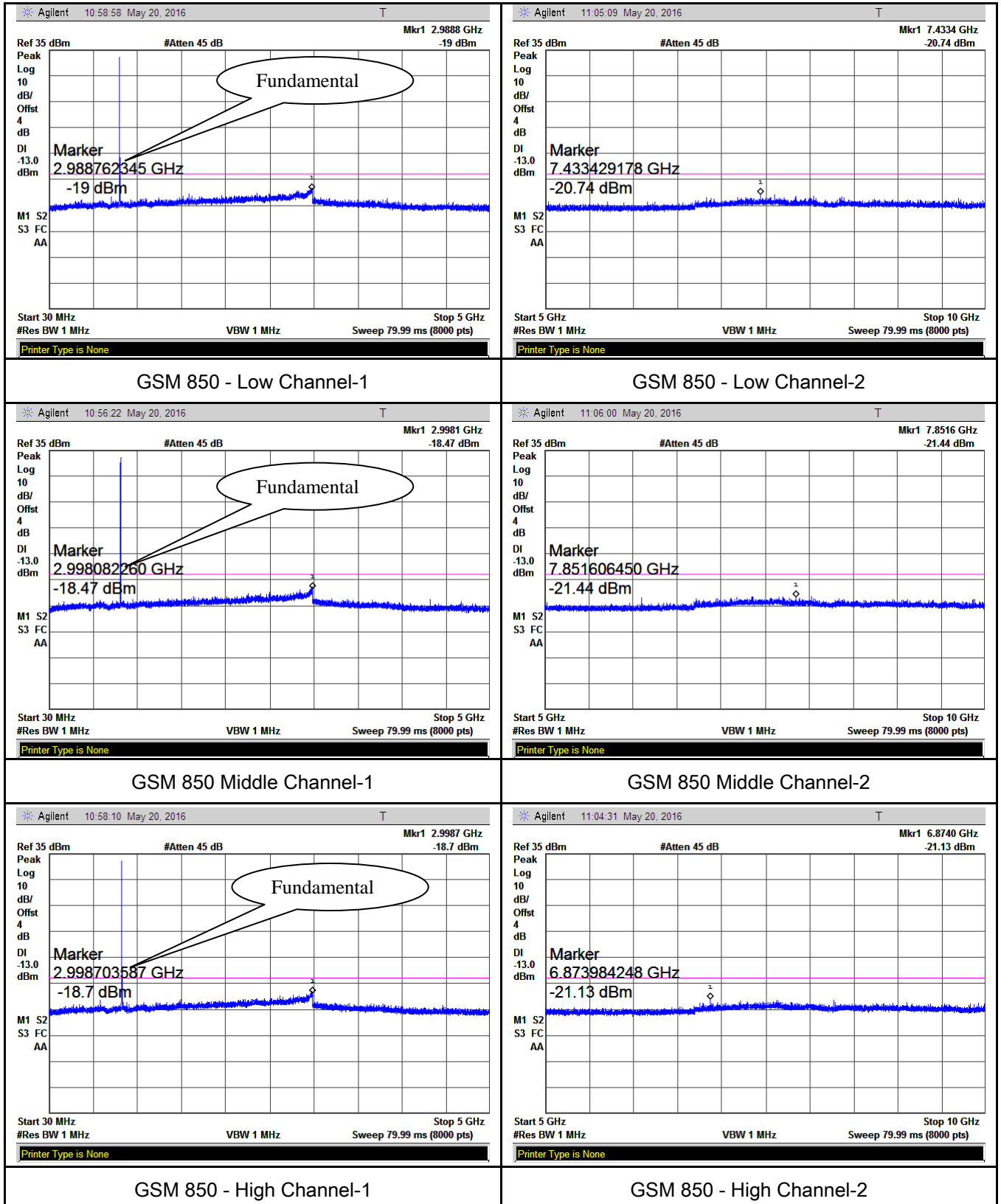


PCS 1900 - High Channel-2

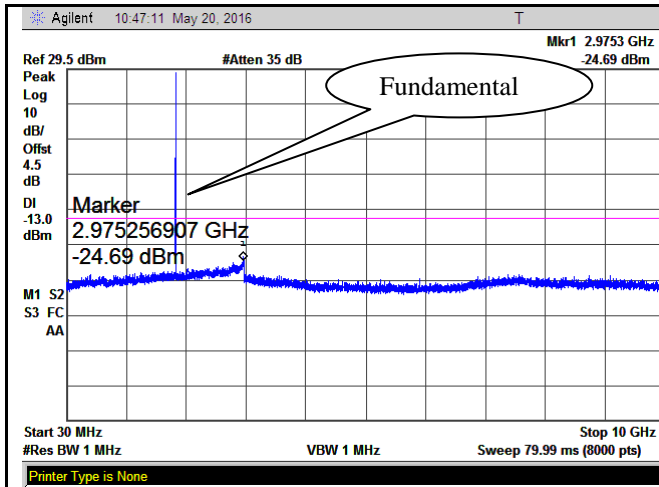
EGPRS Mode:

Test Plots

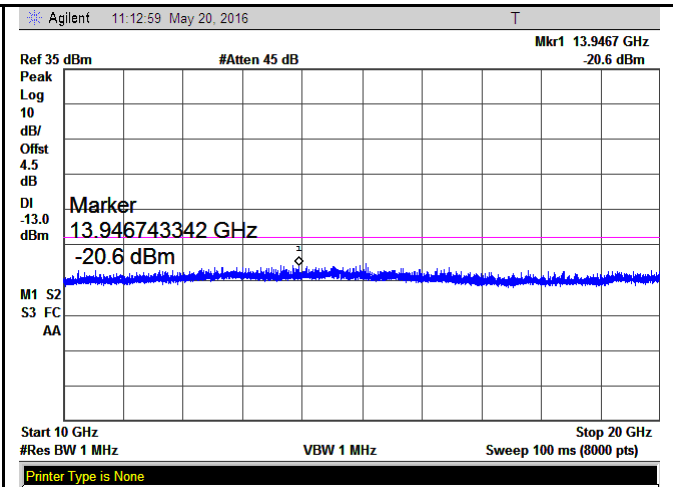
Cellular Band (Part 22H) result



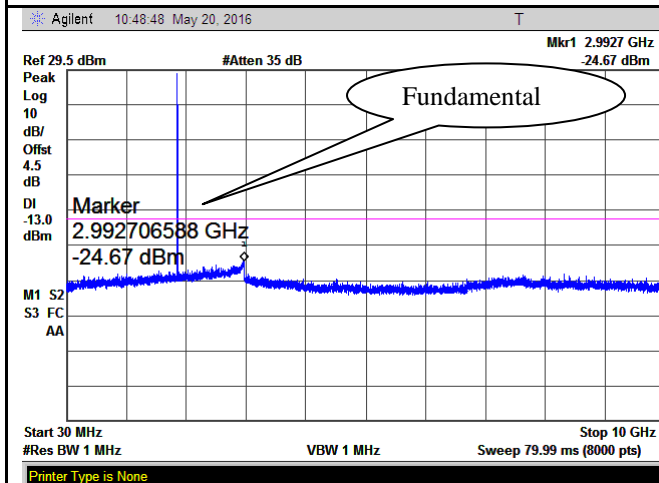
PCS Band (Part24E) result



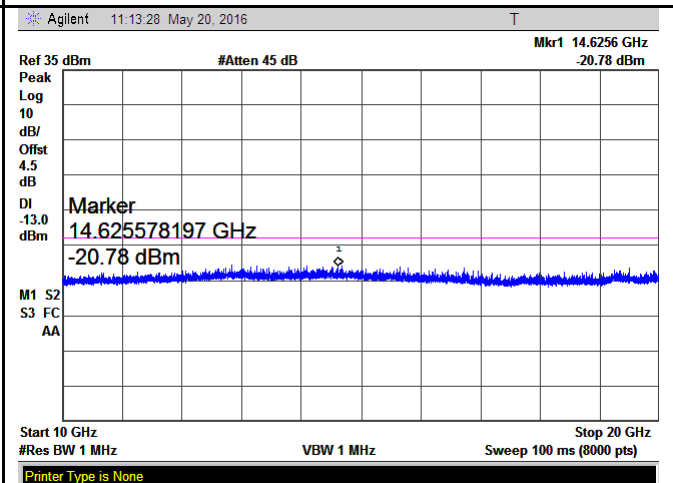
PCS1900 - Low Channel-1



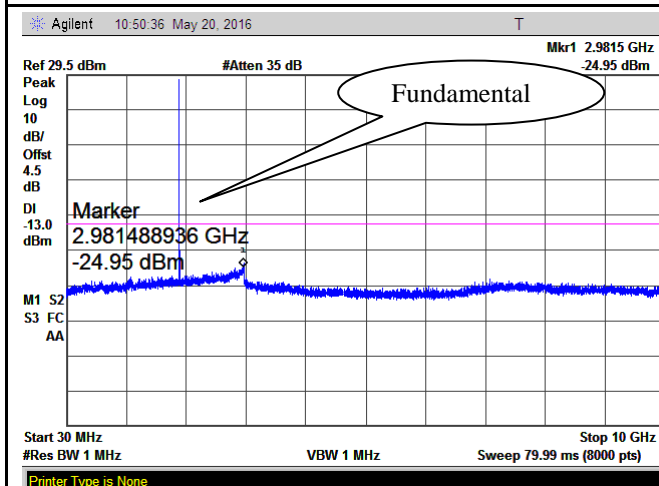
PCS 1900 - Low Channel-2



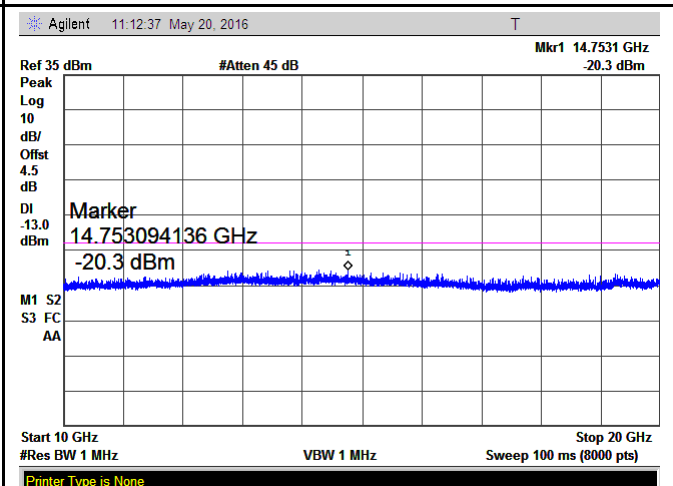
PCS1900 - Middle Channel-1



PCS 1900 - Middle Channel-2



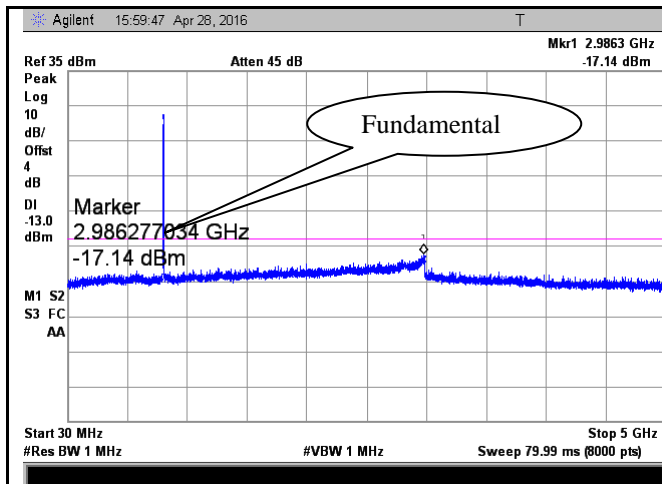
PCS1900 - High Channel-1



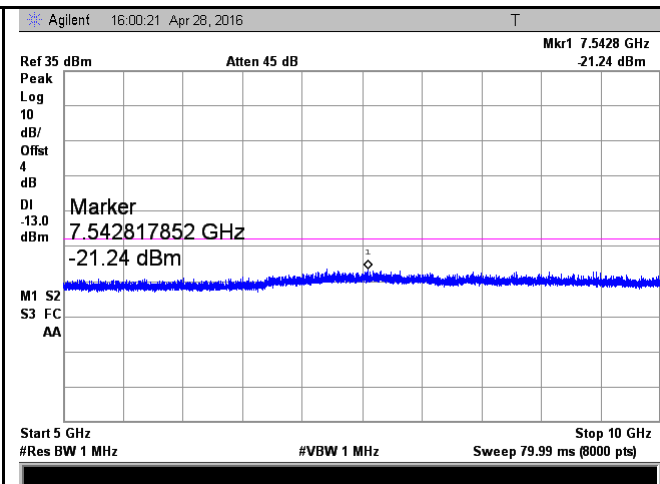
PCS 1900 - High Channel-2

RMC Mode:

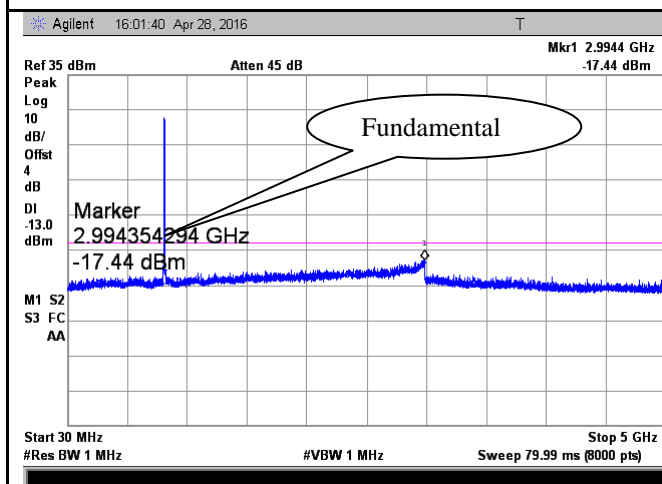
UMTS-FDD Band V (Part 22H)



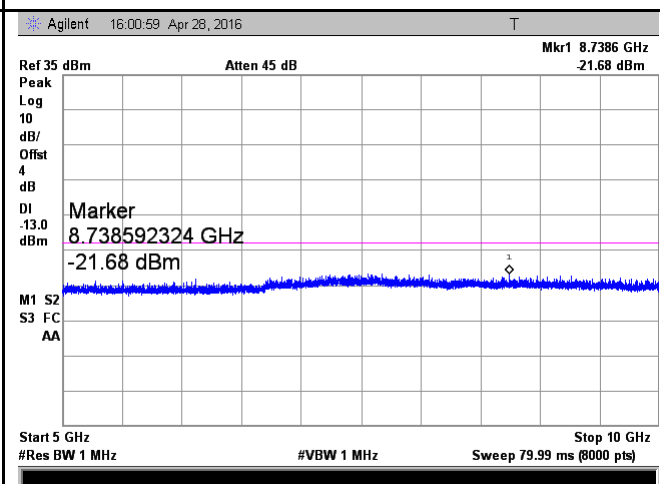
Band V - Low Channel-1



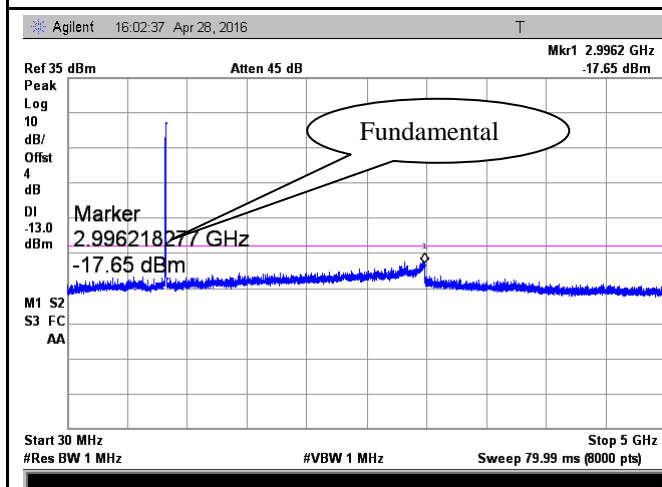
Band V - Low Channel-2



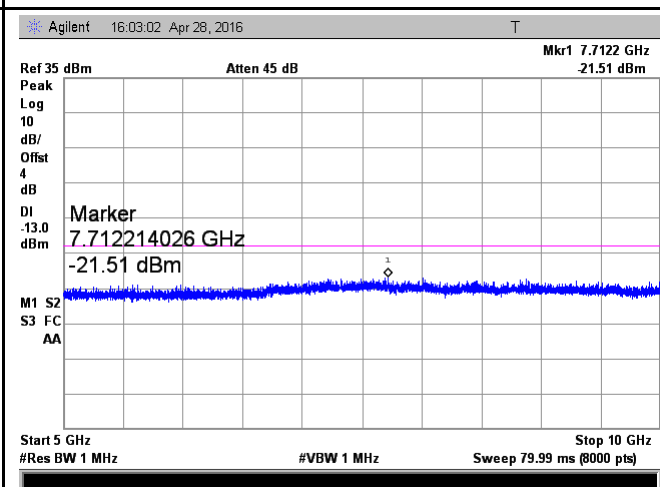
Band V - Middle Channel-1



Band V - Middle Channel-2

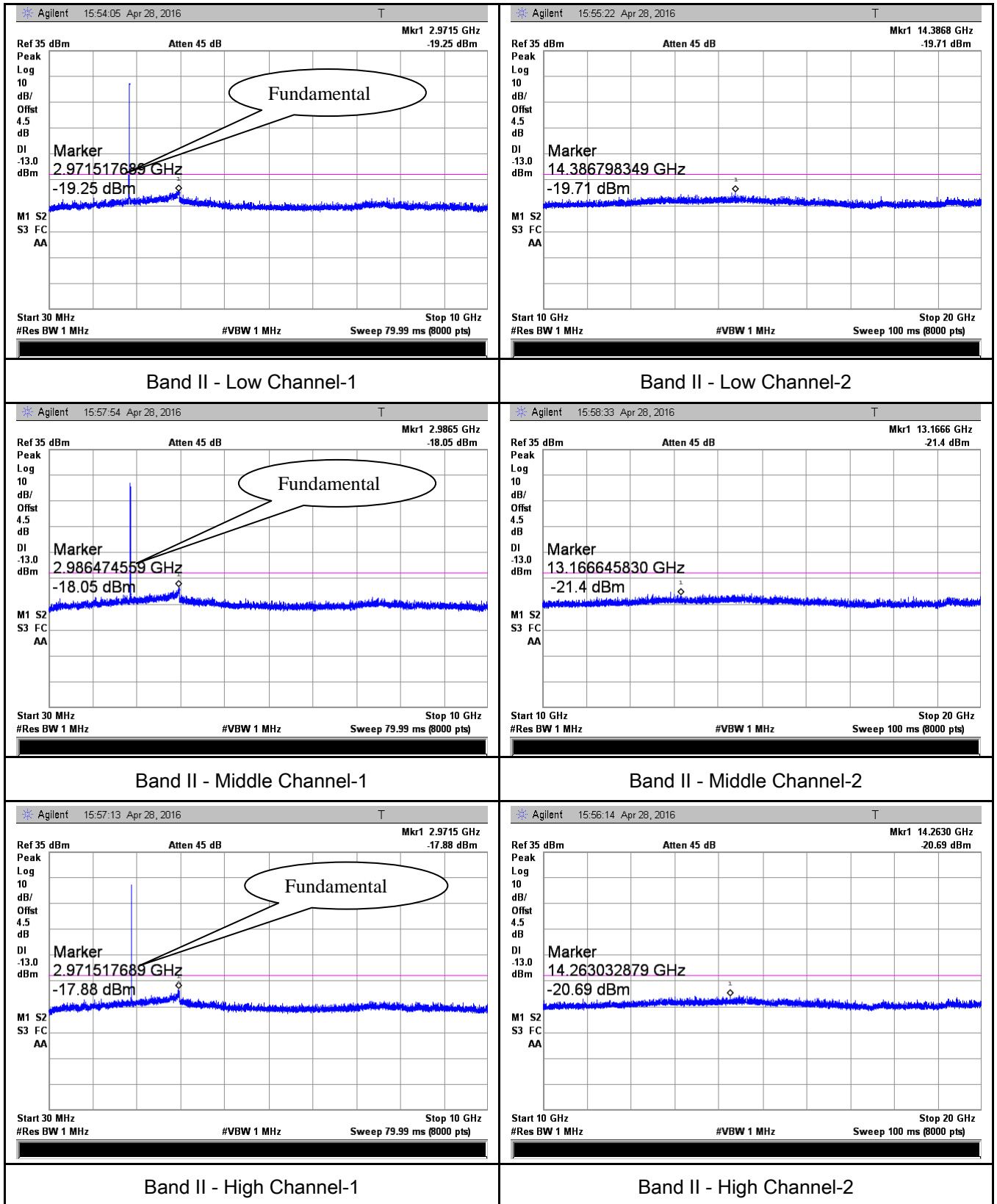


Band V - High Channel-1



Band V - High Channel-2

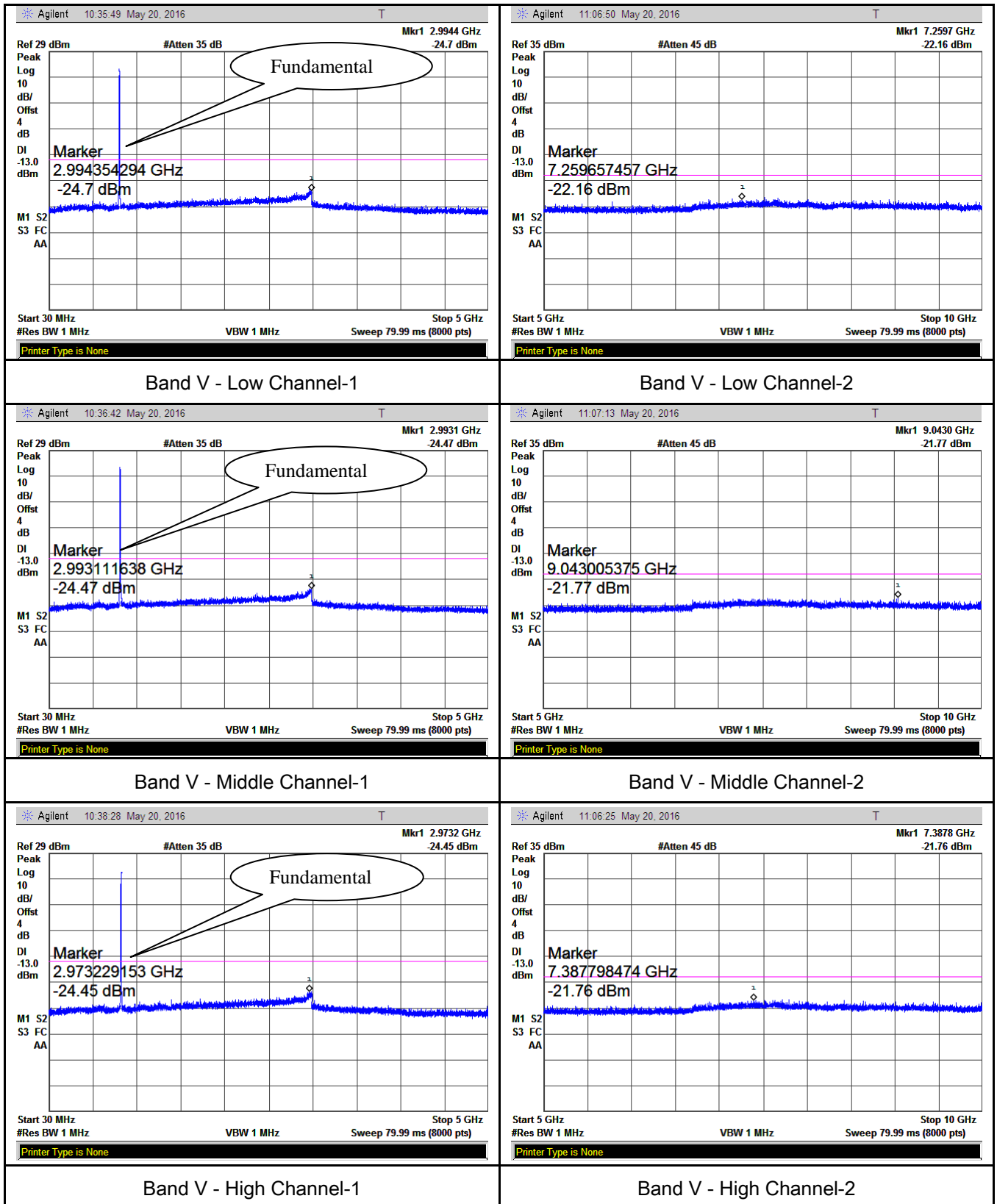
UMTS-FDD Band II (Part 24E)



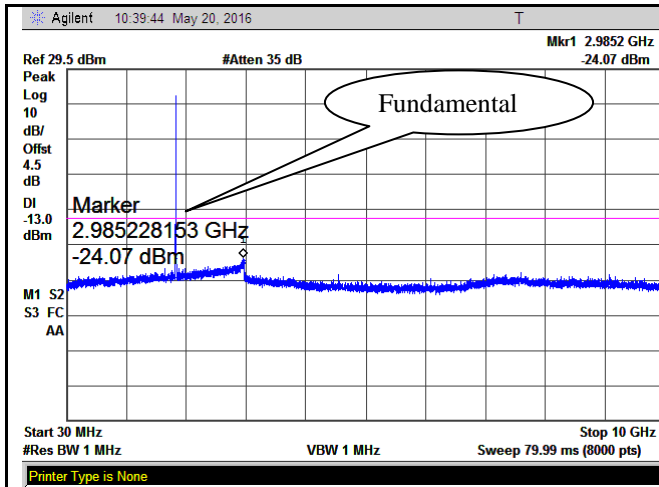
HSDPA Mode:

Test Plots

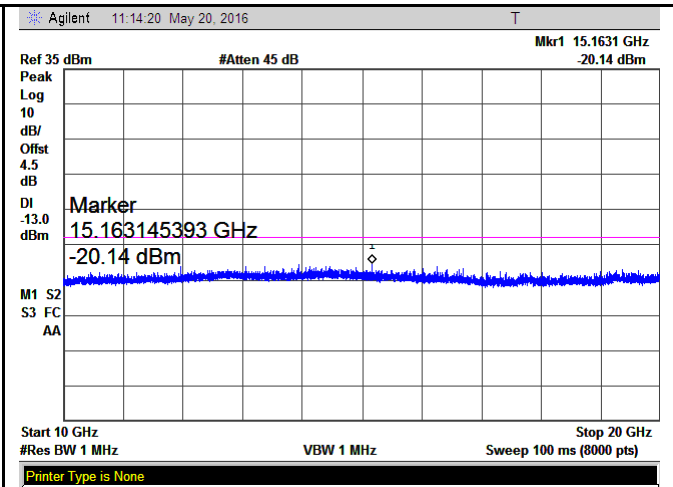
UMTS-FDD Band V (Part 22H)



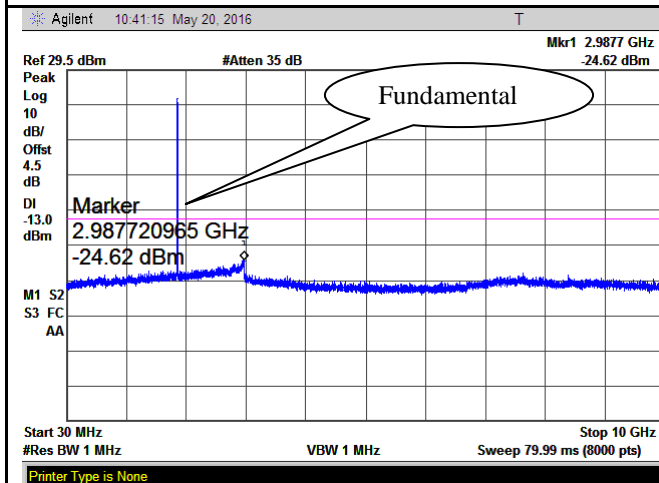
UMTS-FDD Band II (Part 24E)



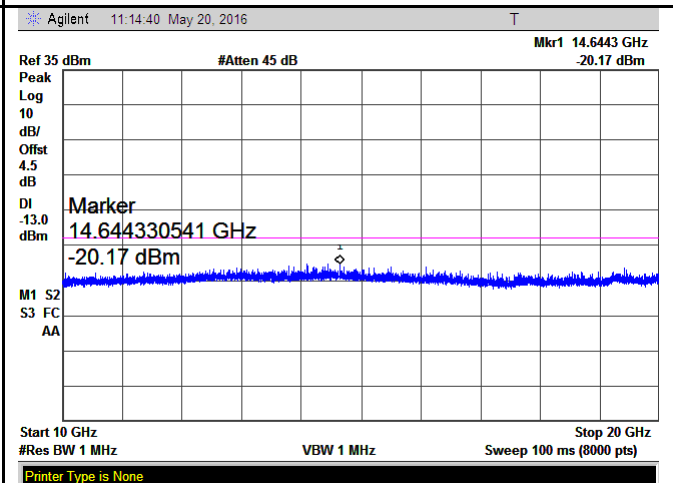
Band II - Low Channel-1



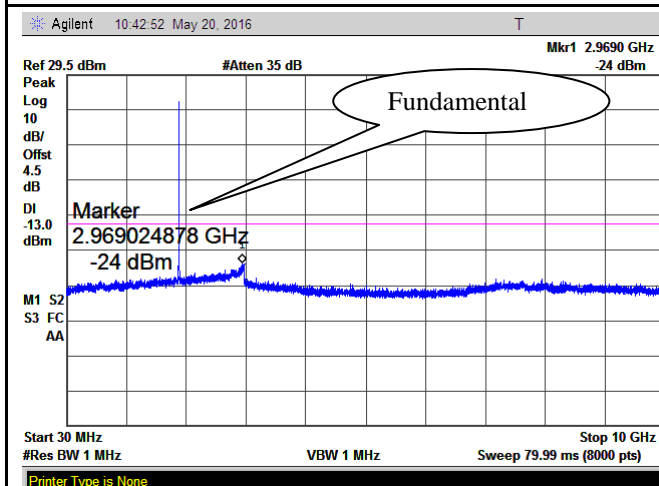
Band II - Low Channel-2



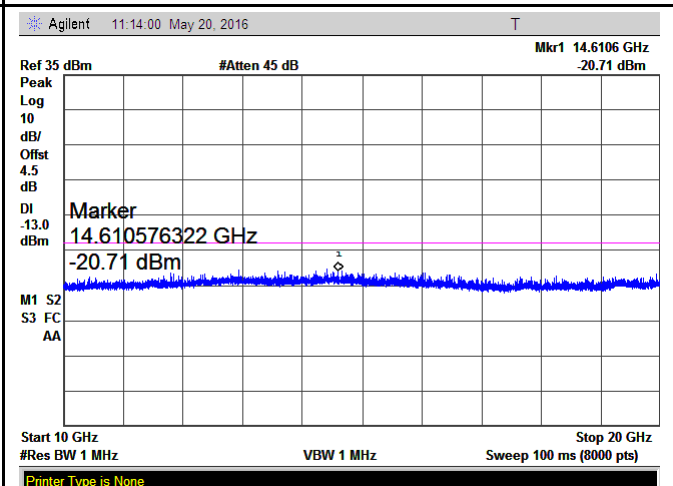
Band II - Middle Channel-1



Band II - Middle Channel-2



Band II - High Channel-1

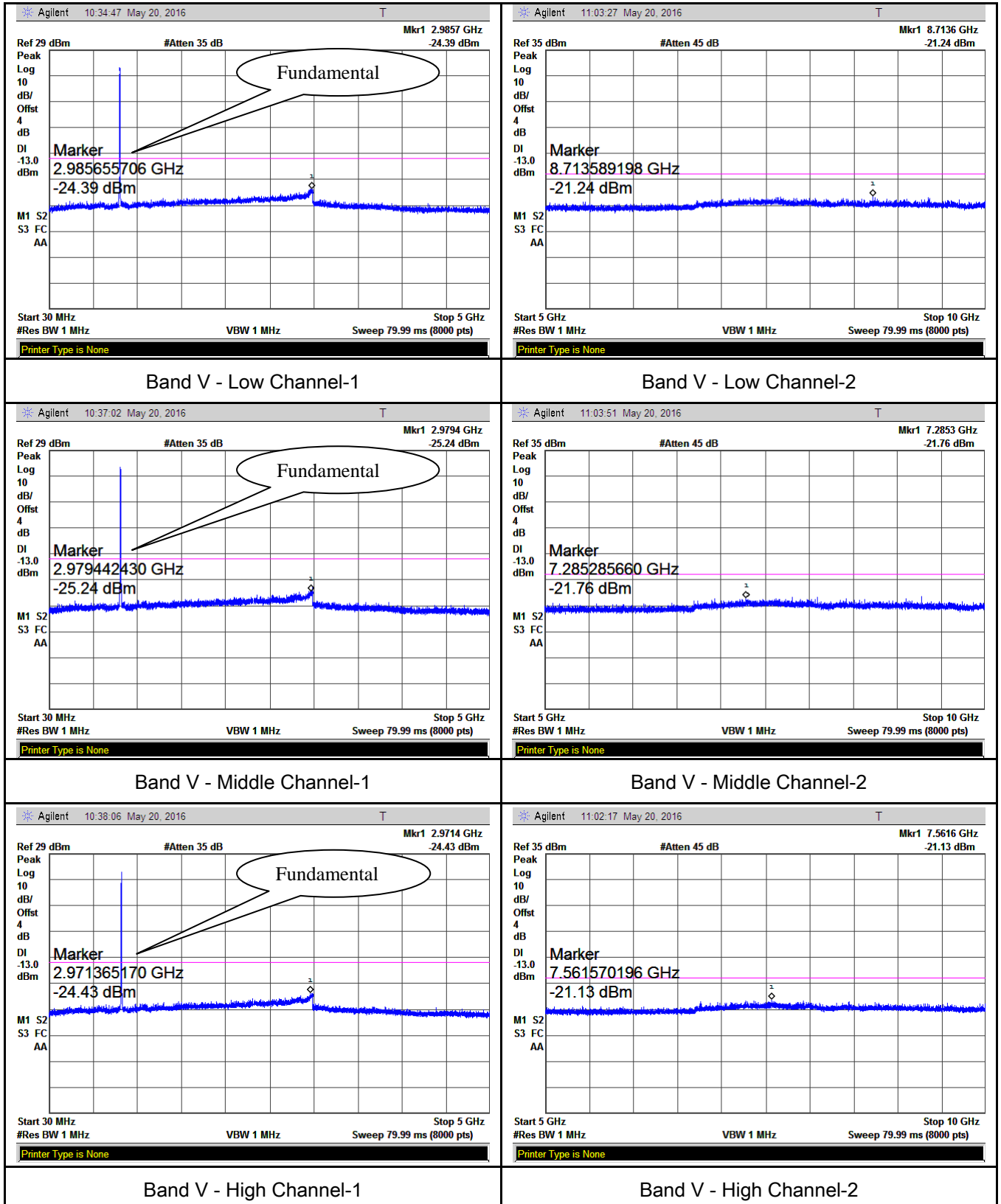


Band II - High Channel-2

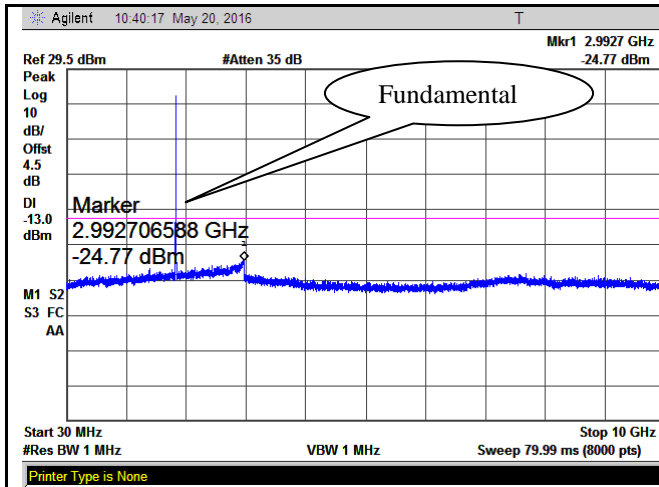
HSUPA Mode:

Test Plots

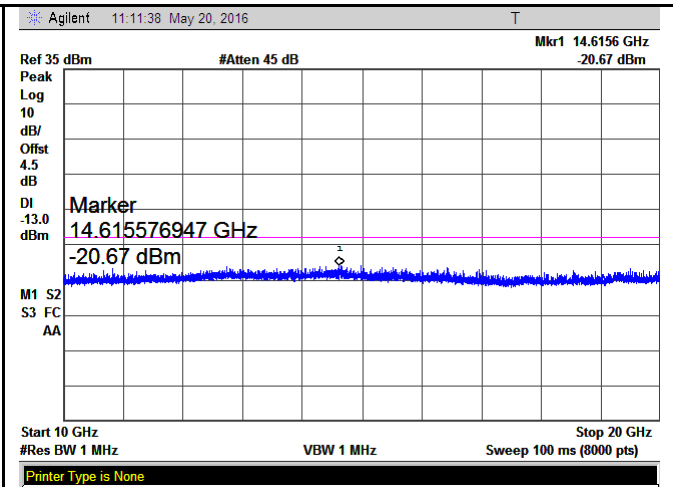
UMTS-FDD Band V (Part 22H)



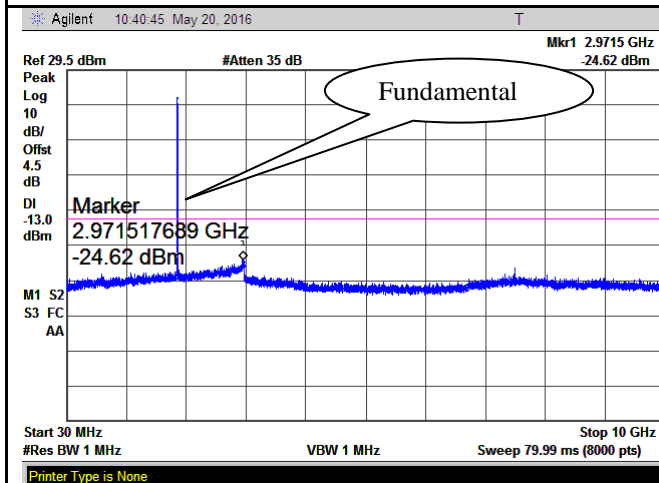
UMTS-FDD Band II (Part 24E)



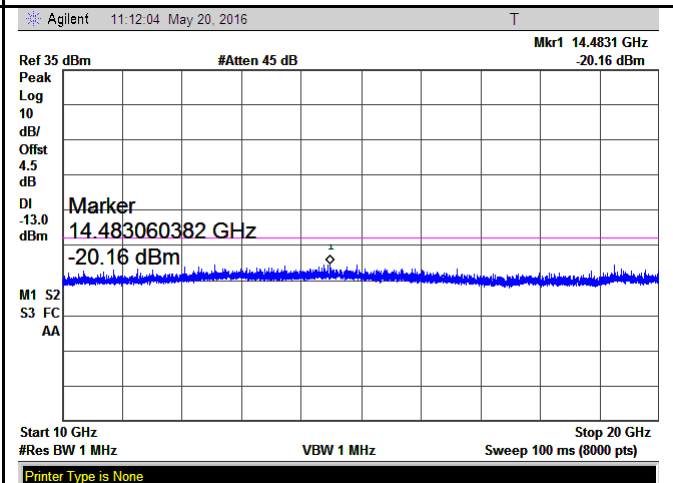
Band II - Low Channel-1



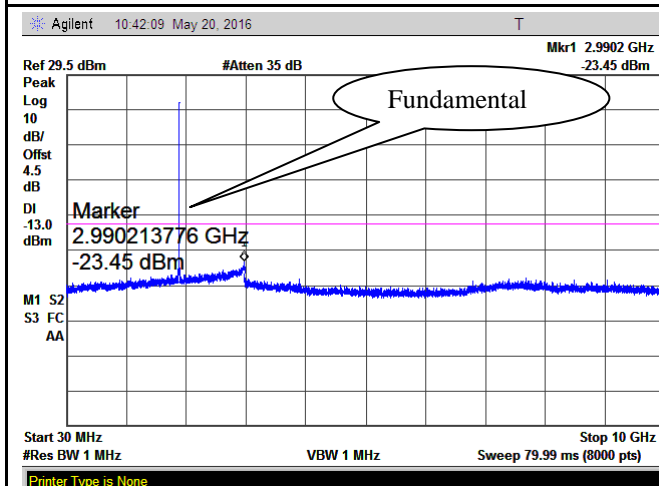
Band II - Low Channel-2



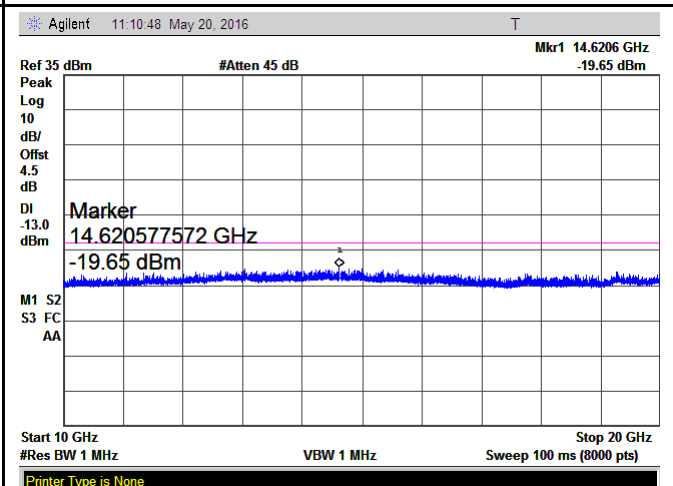
Band II - Middle Channel-1



Band II - Middle Channel-2



Band II - High Channel-1



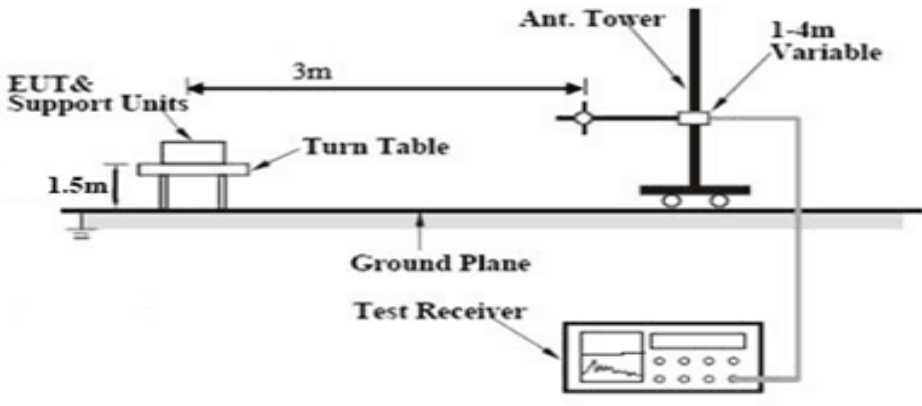
Band II - High Channel-2

6.6 Spurious Radiated Emissions

Temperature	25°C
Relative Humidity	52%
Atmospheric Pressure	1028mbar
Test date :	April 28, 2016
Tested By :	Winnie Zhang

Requirement(s):

Spec	Item	Requirement	Applicable
§2.1053, §22.917 & §24.238	a)	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.	<input checked="" type="checkbox"/>

Test setup	
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Test Procedure	<ol style="list-style-type: none"> The transmitter was placed on a wooden turntable, and it was transmitting into a non-radiating load which was also placed on the turntable. 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. 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. <p>Sample Calculation:</p> <p>EUT Field Strength = Raw Amplitude (dBμV/m) – Amplifier Gain (dB) + Antenna Factor (dB) + Cable Loss (dB) + Filter Attenuation (dB, if used)</p>
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Test Report	16070480-FCC-R1
Page	51 of 85

Remark	
Result	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail

Test Data ☒ Yes ☐ N/A

Test Plot ☐ Yes (See below) ☒ N/A

GSM Voice:

Cellular Band (Part 22H) 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)
1648.4	-43.51	V	7.95	0.78	-36.34	-13	-23.34
1648.4	-44.08	H	7.95	0.78	-36.91	-13	-23.91
328.9	-52.66	V	6.4	0.26	-46.52	-13	-33.52
603.6	-52.83	H	6.8	0.37	-46.40	-13	-33.40

Middle channel

Frequency (MHz)	Substituted level (dBm)	Polarity (H/V)	Antenna Gain Correction (dB)	Cable Loss (dB)	Corrected Reading (dBm)	Limit (dBm)	Margin (dB)
1673.2	-43.42	V	7.95	0.78	-36.25	-13	-23.25
1673.2	-43.95	H	7.95	0.78	-36.78	-13	-23.78
328.6	-52.58	V	6.4	0.26	-46.44	-13	-33.44
603.7	-52.61	H	6.8	0.37	-46.18	-13	-33.18

High channel

Frequency (MHz)	Substituted level (dBm)	Polarity (H/V)	Antenna Gain Correction (dB)	Cable Loss (dB)	Corrected Reading (dBm)	Limit (dBm)	Margin (dB)
1697.6	-43.37	V	7.95	0.78	-36.20	-13	-23.20
1697.6	-43.88	H	7.95	0.78	-36.71	-13	-23.71
328.1	-52.63	V	6.4	0.26	-46.49	-13	-33.49
603.9	-52.59	H	6.8	0.37	-46.16	-13	-33.16

Note:

1, The testing has been conformed to $10 \times 848.8 \text{ MHz} = 8,488 \text{ MHz}$

2, All other emissions more than 30 dB below the limit

3, GSM voice, GPRS and EGPRS mode were investigated. The results above show only the worse cases.

PCS Band (Part24E) 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)
3700.4	-48.63	V	10.25	2.73	-41.11	-13	-28.11
3700.4	-49.17	H	10.25	2.73	-41.65	-13	-28.65
327.8	-53.22	V	6.4	0.26	-47.08	-13	-34.08
603.5	-53.74	H	6.8	0.37	-47.31	-13	-34.31

Middle channel

Frequency (MHz)	Substituted level (dBm)	Polarity (H/V)	Antenna Gain Correction (dB)	Cable Loss (dB)	Corrected Reading (dBm)	Limit (dBm)	Margin (dB)
3760	-48.58	V	10.25	2.73	-41.06	-13	-28.06
3760	-49.23	H	10.25	2.73	-41.71	-13	-28.71
327.6	-53.16	V	6.4	0.26	-47.02	-13	-34.02
602.9	-53.62	H	6.8	0.37	-47.19	-13	-34.19

High channel

Frequency (MHz)	Substituted level (dBm)	Polarity (H/V)	Antenna Gain Correction (dB)	Cable Loss (dB)	Corrected Reading (dBm)	Limit (dBm)	Margin (dB)
3819.6	-48.51	V	10.36	2.73	-40.88	-13	-27.88
3819.6	-49.37	H	10.36	2.73	-41.74	-13	-28.74
327.1	-53.34	V	6.4	0.26	-47.20	-13	-34.20
602.8	-51.73	H	6.8	0.37	-45.30	-13	-32.30

Note:

1, The testing has been conformed to $10 \times 1909.8 \text{ MHz} = 19,098 \text{ MHz}$

2, All other emissions more than 30 dB below the limit

3, GSM voice, GPRS and EGPRS mode were investigated. The results above show only the worse cases.

RMC Mode:

UMTS-FDD Band V (Part 22H)

Low channel

Frequency (MHz)	Substituted level (dBm)	Polarity (H/V)	Antenna Gain Correction (dB)	Cable Loss (dB)	Corrected Reading (dBm)	Limit (dBm)	Margin (dB)
1652.8	-46.38	V	7.95	0.78	-39.21	-13	-26.21
1652.8	-45.71	H	7.95	0.78	-38.54	-13	-25.54
328.3	-52.63	V	6.4	0.26	-46.49	-13	-33.49
603.7	-53.05	H	6.8	0.37	-46.62	-13	-33.62

Middle channel

Frequency (MHz)	Substituted level (dBm)	Polarity (H/V)	Antenna Gain Correction (dB)	Cable Loss (dB)	Corrected Reading (dBm)	Limit (dBm)	Margin (dB)
1670	-46.42	V	7.95	0.78	-39.25	-13	-26.25
1670	-45.68	H	7.95	0.78	-38.51	-13	-25.51
328.4	-52.49	V	6.4	0.26	-46.35	-13	-33.35
603.8	-52.84	H	6.8	0.37	-46.41	-13	-33.41

High channel

Frequency (MHz)	Substituted level (dBm)	Polarity (H/V)	Antenna Gain Correction (dB)	Cable Loss (dB)	Corrected Reading (dBm)	Limit (dBm)	Margin (dB)
1693.2	-46.52	V	7.95	0.78	-39.35	-13	-26.35
1693.2	-45.59	H	7.95	0.78	-38.42	-13	-25.42
328.6	-52.61	V	6.4	0.26	-46.47	-13	-33.47
603.3	-52.97	H	6.8	0.37	-46.54	-13	-33.54

Note:

1, The testing has been conformed to $10 \times 846.6 \text{ MHz} = 8,466 \text{ MHz}$

2, All other emissions more than 30 dB below the limit

3, GSM voice, GPRS and EGPRS mode were investigated. The results above show only the worse cases.

UMTS-FDD Band II (Part 24E)

Low channel

Frequency (MHz)	Substituted level (dBm)	Polarity (H/V)	Antenna Gain Correction (dB)	Cable Loss (dB)	Corrected Reading (dBm)	Limit (dBm)	Margin (dB)
3704.8	-49.33	V	10.25	2.73	-41.81	-13	-28.81
3704.8	-49.81	H	10.25	2.73	-42.29	-13	-29.29
329.1	-53.49	V	6.4	0.26	-47.35	-13	-34.35
602.5	-53.24	H	6.8	0.37	-46.81	-13	-33.81

Middle channel

Frequency (MHz)	Substituted level (dBm)	Polarity (H/V)	Antenna Gain Correction (dB)	Cable Loss (dB)	Corrected Reading (dBm)	Limit (dBm)	Margin (dB)
3760	-49.26	V	10.25	2.73	-41.74	-13	-28.74
3760	-49.61	H	10.25	2.73	-42.09	-13	-29.09
329.6	-53.55	V	6.4	0.26	-47.41	-13	-34.41
602.2	-53.38	H	6.8	0.37	-46.95	-13	-33.95

High channel

Frequency (MHz)	Substituted level (dBm)	Polarity (H/V)	Antenna Gain Correction (dB)	Cable Loss (dB)	Corrected Reading (dBm)	Limit (dBm)	Margin (dB)
3815.2	-49.28	V	10.36	2.73	-41.65	-13	-28.65
3815.2	-49.45	H	10.36	2.73	-41.82	-13	-28.82
329.4	-53.41	V	6.4	0.26	-47.27	-13	-34.27
603.8	-53.77	H	6.8	0.37	-47.34	-13	-34.34

Note:

1, The testing has been conformed to $10 \times 1907.6 \text{ MHz} = 19,076 \text{ MHz}$

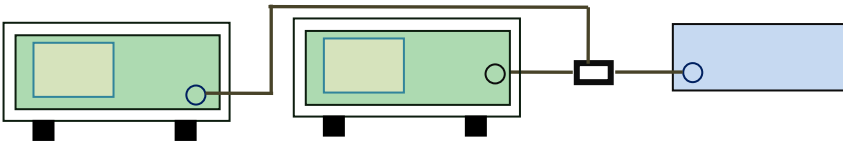
2, All other emissions more than 30 dB below the limit

3, GSM voice, GPRS and EGPRS mode were investigated. The results above show only the worse cases.

6.7 Band Edge

Temperature	25°C
Relative Humidity	52%
Atmospheric Pressure	1028mbar
Test date :	April 28, 2016&May 19 to 20, 2016
Tested By :	Winnie Zhang

Requirement(s):

Spec	Item	Requirement	Applicable
§22.917(a) §24.238(a)	a)	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.	<input checked="" type="checkbox"/>
Test setup			
Procedure	<ul style="list-style-type: none"> - The EUT was connected to Spectrum Analyzer and Base Station via power divider. - The Band Edges of low and high channels for the highest RF powers were measured. Setting RBW as roughly BW/100. 		
Remark			
Result	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail		

Test Data ☒ Yes ☐ N/A

Test Plot ☒ Yes (See below) ☐ N/A

GSM Mode :

Cellular Band (Part 22H) result

Frequency (MHz)	Emission (dBm)	Limit (dBm)
823.9800	-14.24	-13
849.0175	-13.06	-13

PCS Band (Part24E) result

Frequency (MHz)	Emission (dBm)	Limit (dBm)
1849.9950	-15.86	-13
1910.0100	-16.51	-13

GPRS Mode :

Cellular Band (Part 22H) result

Frequency (MHz)	Emission (dBm)	Limit (dBm)
823.9950	-16.09	-13
849.0200	-16.62	-13

PCS Band (Part24E) result

Frequency (MHz)	Emission (dBm)	Limit (dBm)
1849.9973	-17.54	-13
1910.0125	-16.06	-13

EGPRS Mode:

Cellular Band (Part 22H) result

Frequency (MHz)	Emission (dBm)	Limit (dBm)
823.9825	-17.82	-13
849.0150	-18.12	-13

PCS Band (Part24E) result

Frequency (MHz)	Emission (dBm)	Limit (dBm)
1849.9988	-17.07	-13
1910.0125	-19.28	-13

RMC Mode:

UMTS-FDD Band V (Part 22H)

Frequency (MHz)	Emission (dBm)	Limit (dBm)
823.875	-24.66	-13
849.050	-22.78	-13

UMTS-FDD Band II (Part 24E)

Frequency (MHz)	Emission (dBm)	Limit (dBm)
1848.850	-27.12	-13
1910.400	-29.19	-13

HSDPA Mode :

UMTS-FDD Band V (Part 22H)

Frequency (MHz)	Emission (dBm)	Limit (dBm)
823.850	-25.34	-13
849.200	-22.13	-13

UMTS-FDD Band II (Part 24E)

Frequency (MHz)	Emission (dBm)	Limit (dBm)
1848.625	-28.72	-13
1910.700	-29.33	-13

HSUPA Mode :

UMTS-FDD Band V (Part 22H)

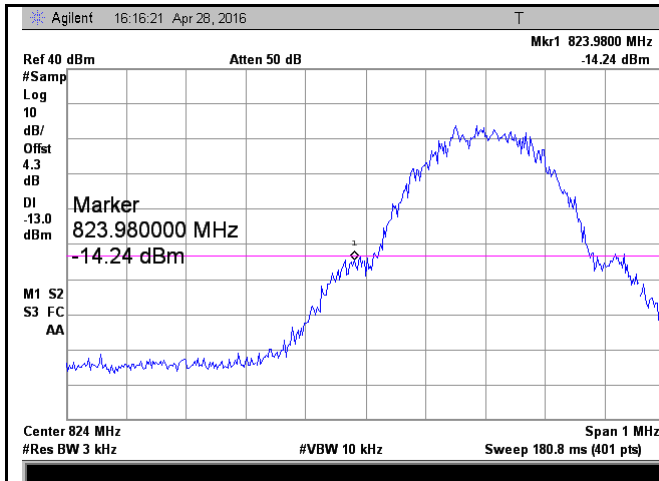
Frequency (MHz)	Emission (dBm)	Limit (dBm)
823.850	-25.51	-13
849.225	-22.74	-13

UMTS-FDD Band II (Part 24E)

Frequency (MHz)	Emission (dBm)	Limit (dBm)
1849.725	-28.75	-13
1910.045	-28.81	-13

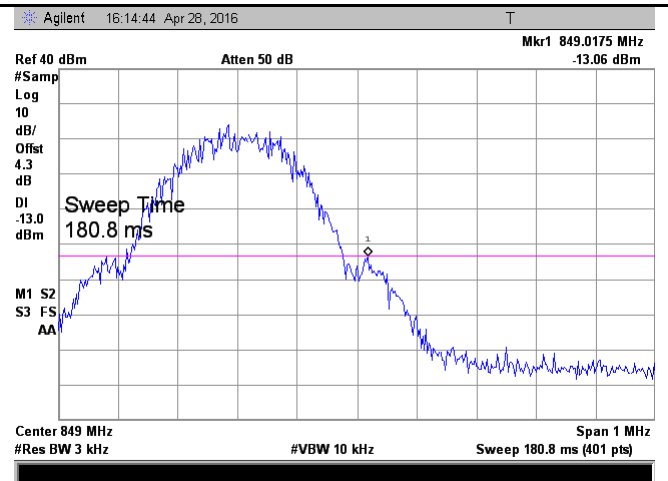
GSM Mode :

Test Plots



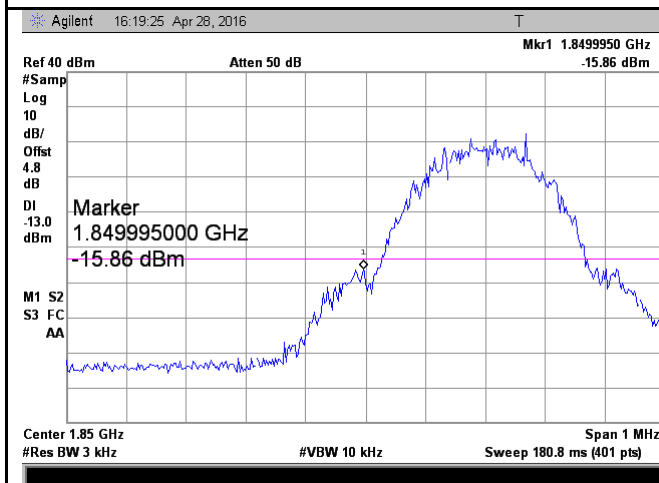
Cellular Band - Low Channel

Note: Offset=Cable loss (4.0) + 10log
(3.24/3)=4.0+0.3=4.3dB



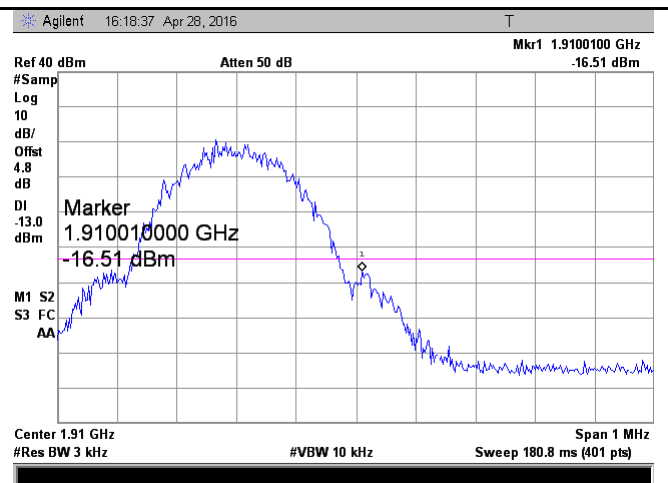
Cellular Band - High Channel

Note: Offset=Cable loss (4.0) + 10log
(3.18/3)=4.0+0.3=4.3dB



PCS Band - Low Channel

Note: Offset=Cable loss (4.5) + 10log
(3.19/3)=4.5+0.3=4.8dB

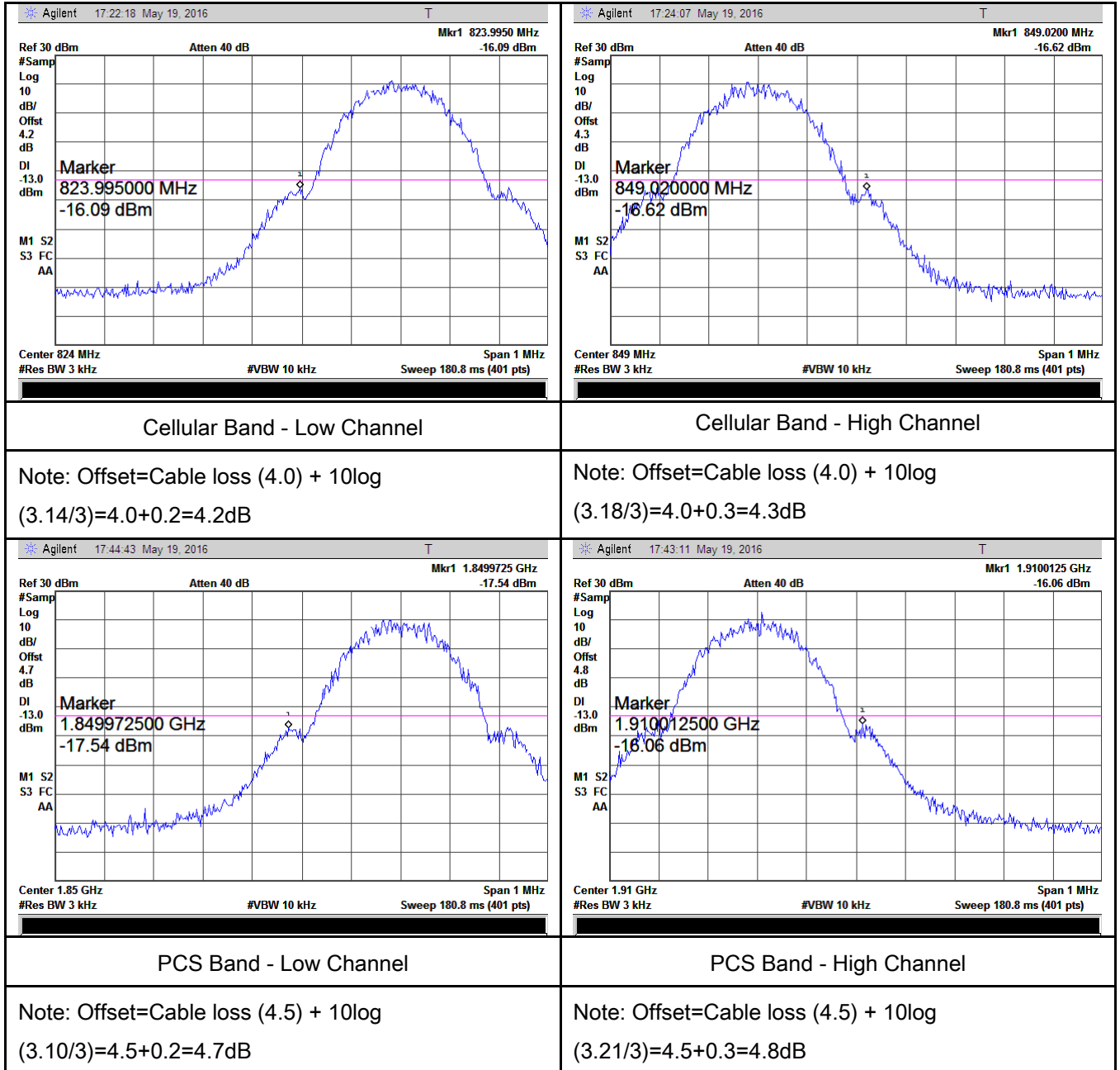


PCS Band - High Channel

Note: Offset=Cable loss (4.5) + 10log
(3.18/3)=4.5+0.3=4.8dB

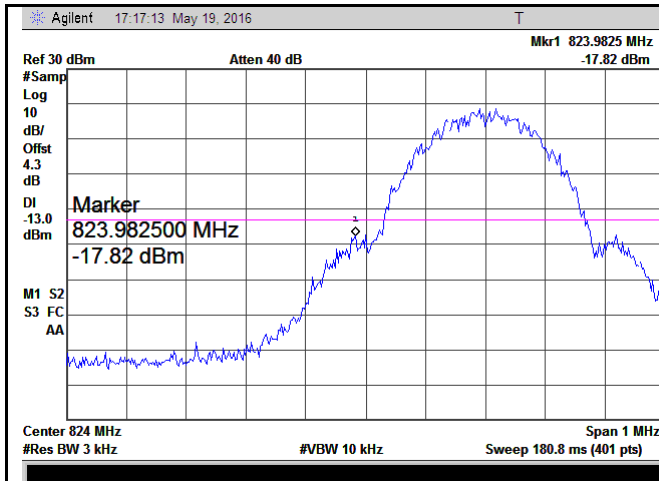
GPRS Mode :

Test Plots



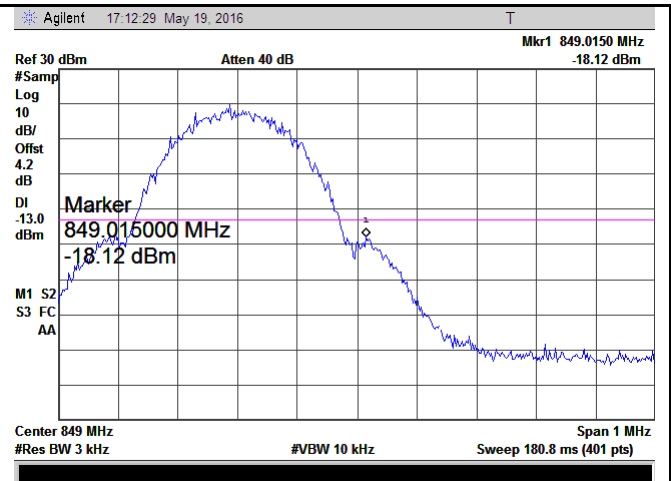
EGPRS Mode :

Test Plots



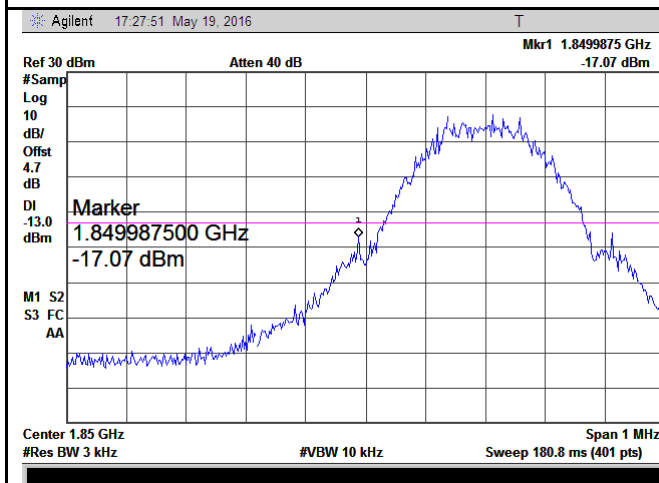
Cellular Band - Low Channel

Note: Offset=Cable loss (4.0) + 10log
(3.23/3)=4.0+0.3=4.3dB



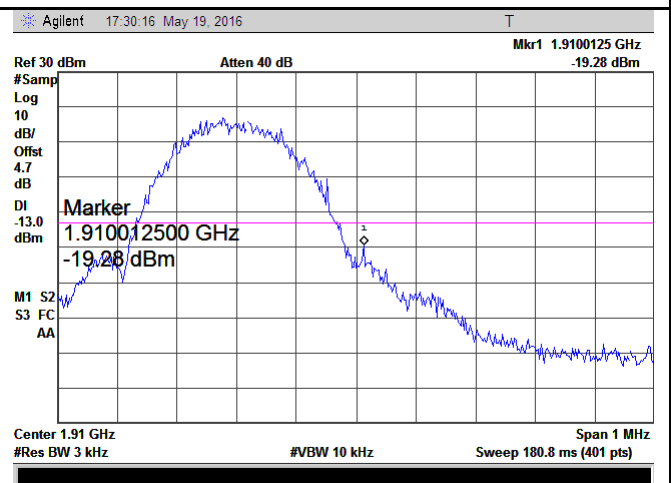
Cellular Band - High Channel

Note: Offset=Cable loss (4.0) + 10log
(3.12/3)=4.0+0.2=4.2dB



PCS Band - Low Channel

Note: Offset=Cable loss (4.5) + 10log
(3.13/3)=4.5+0.2=4.7dB

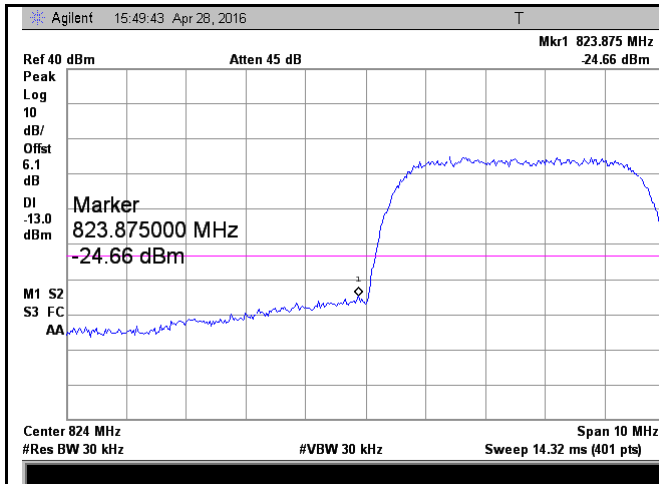


PCS Band - High Channel

Note: Offset=Cable loss (4.5) + 10log
(3.17/3)=4.5+0.2=4.7dB

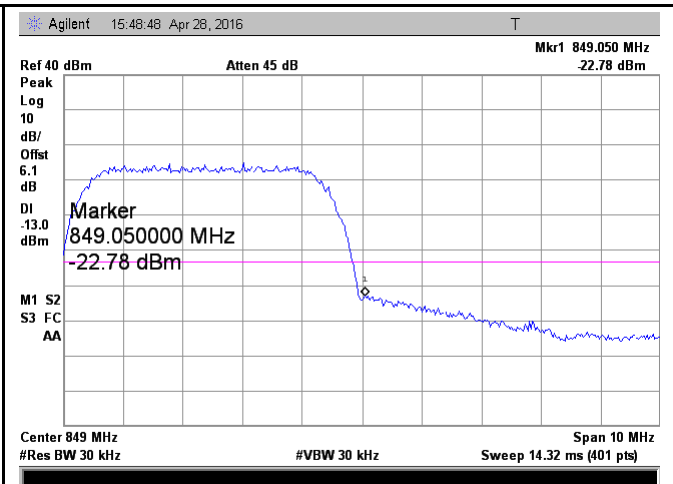
RMC Mode :

Test Plots



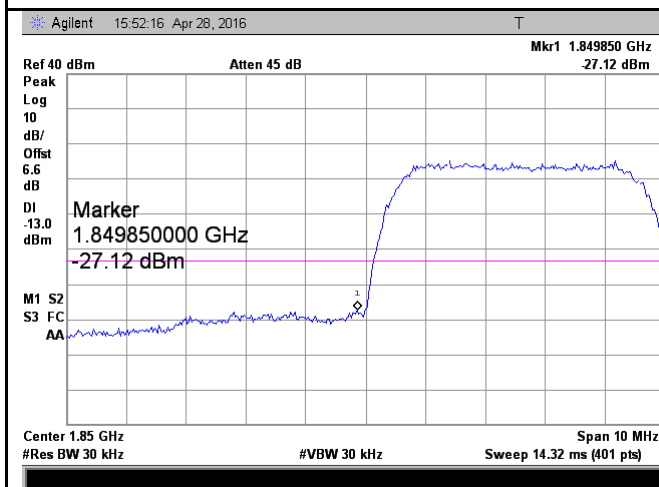
UMTS-FDD Band V - Low Channel

Note: Offset=Cable loss (4.0) + 10log
(48.68/30)=4.0+2.1=6.1 dB



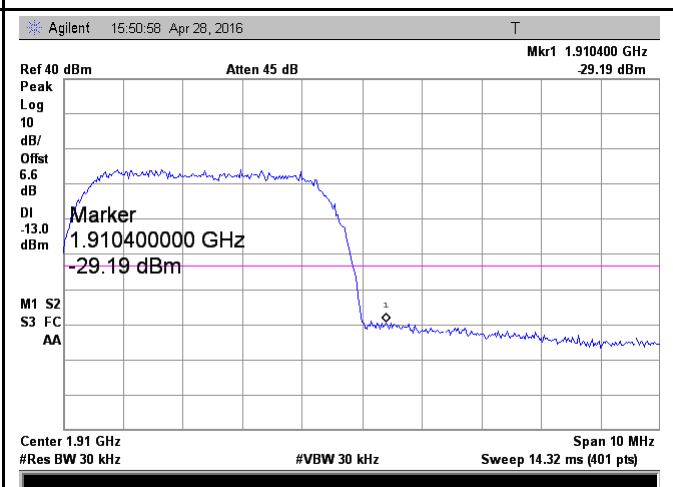
UMTS-FDD Band V - High Channel

Note: Offset=Cable loss (4.0) + 10log
(48.60/30)=4.0+2.1=6.1 dB



UMTS-FDD Band II - Low Channel

Note: Offset=Cable loss (4.5) + 10log
(48.58/30)=4.5+2.1=6.6 dB

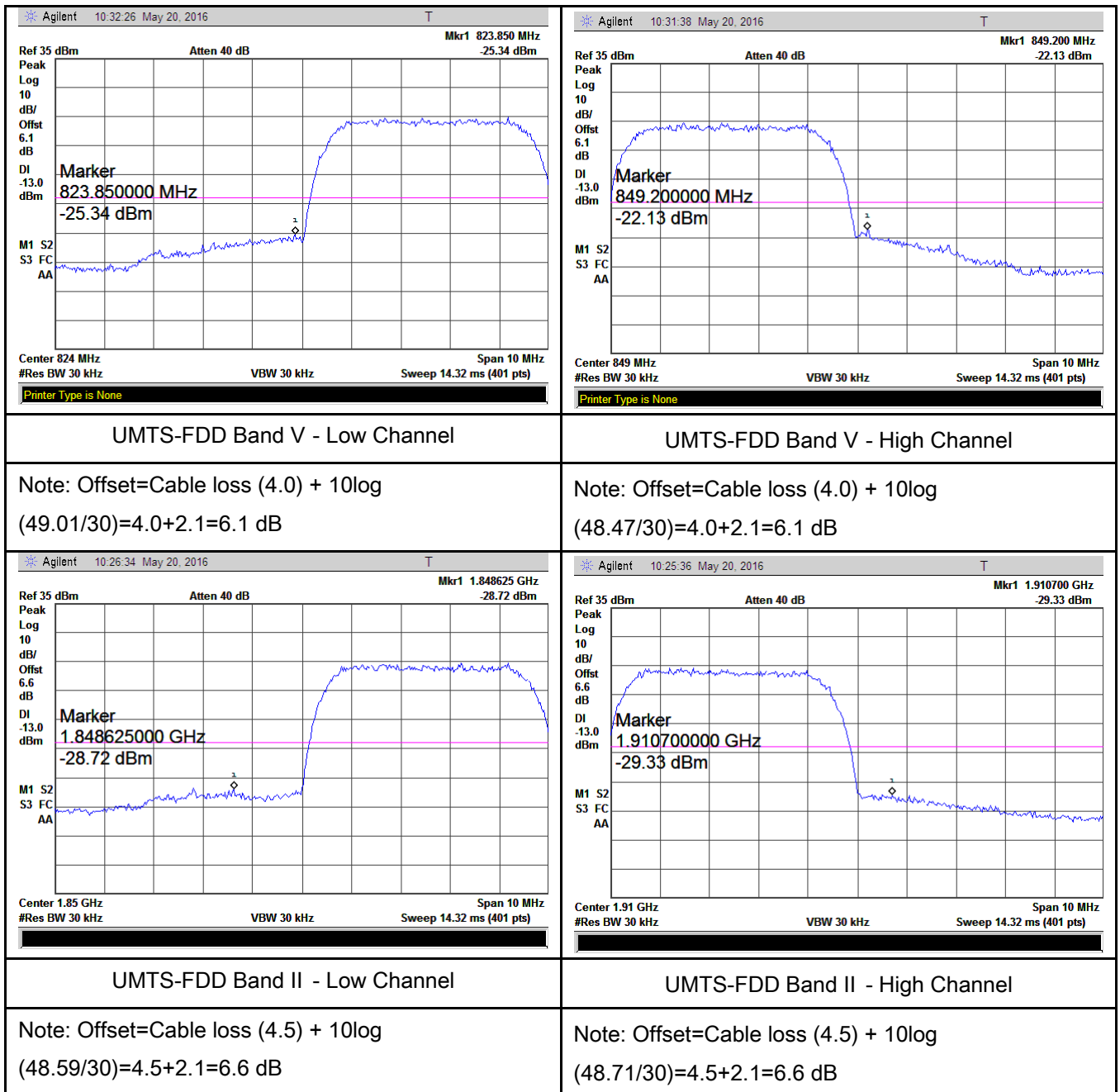


UMTS-FDD Band II - High Channel

Note: Offset=Cable loss (4.5) + 10log
(48.45/30)=4.5+2.1=6.6 dB

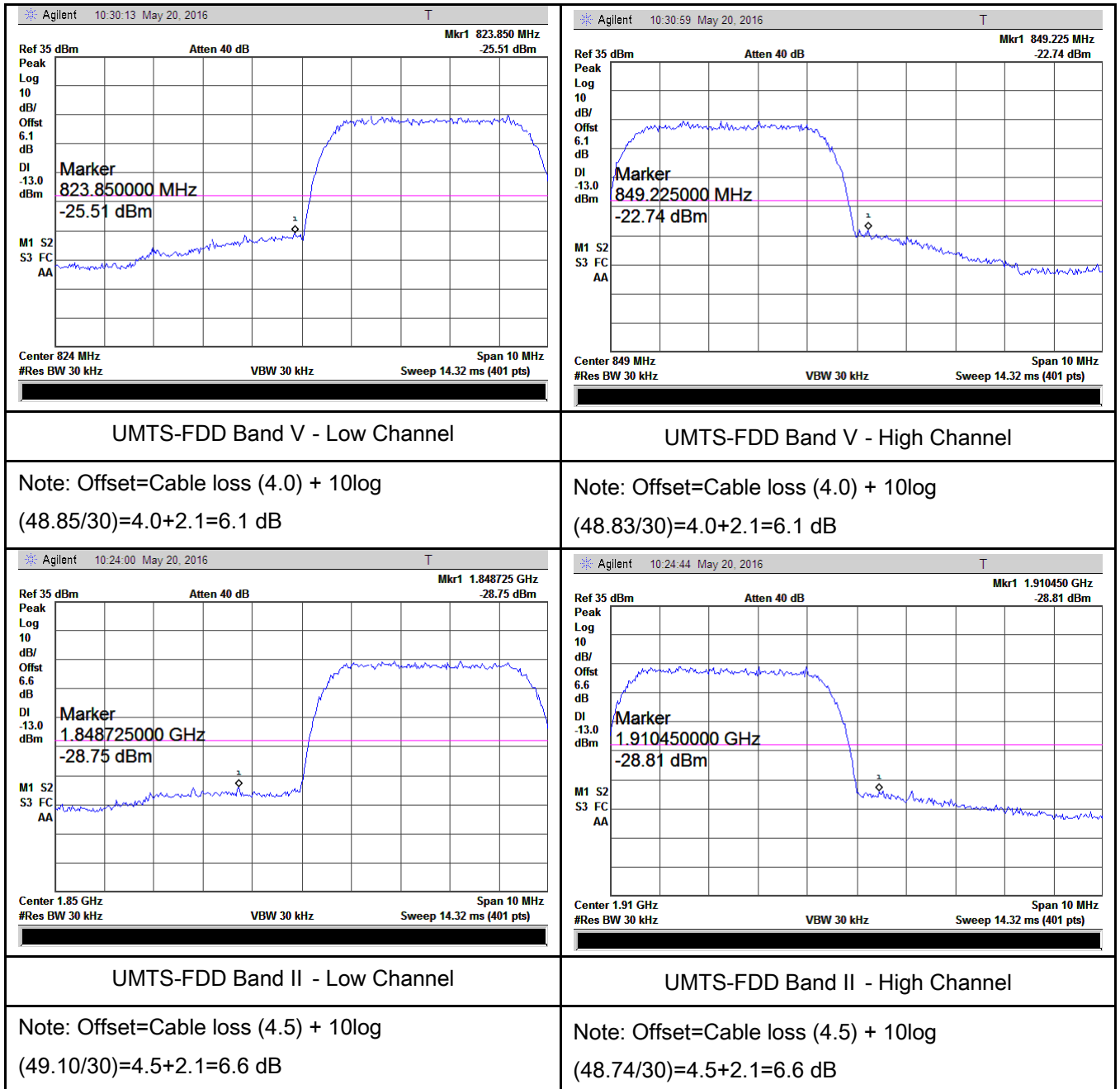
HSDPA Mode :

Test Plots



HSUPA Mode :


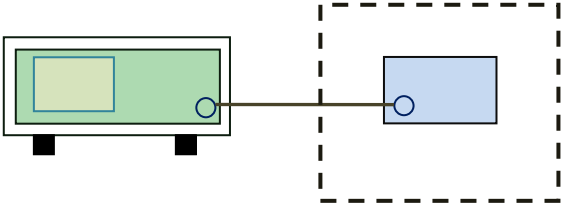
Test Plots



6.8 Frequency Stability

Temperature	25°C
Relative Humidity	52%
Atmospheric Pressure	1028mbar
Test date :	April 28, 2016&May 20, 2016
Tested By :	Winnie Zhang

Requirement(s):

Spec	Item	Requirement	Applicable																																
§2.1055, §22.355 & §24.235	a)	<p>According to §22.355, the carrier frequency of each transmitter in the Public Mobile Services must be maintained within the tolerances given in Table below:</p> <p>Frequency Tolerance for Transmitters in the Public Mobile Services</p> <table border="1"> <thead> <tr> <th>Frequency Range (MHz)</th><th>Base, fixed (ppm)</th><th>Mobile ≤ 3 watts (ppm)</th><th>Mobile ≤ 3 watts (ppm)</th></tr> </thead> <tbody> <tr> <td>25 to 50</td><td>20.0</td><td>20.0</td><td>50.0</td></tr> <tr> <td>50 to 450</td><td>5.0</td><td>5.0</td><td>50.0</td></tr> <tr> <td>45 to 512</td><td>2.5</td><td>5.0</td><td>.0</td></tr> <tr> <td>821 to 896</td><td>1.5</td><td>2.5</td><td>2.5</td></tr> <tr> <td>928 to 29.</td><td>5.0</td><td>N/A</td><td>N/A</td></tr> <tr> <td>929 to 960.</td><td>1.5</td><td>N/A</td><td>N/A</td></tr> <tr> <td>2110 to 2220</td><td>10.0</td><td>N/A</td><td>N/A</td></tr> </tbody> </table> <p>According to §24.235, the frequency stability shall be sufficient to ensure that the fundamental emissions stay within the authorized frequency block.</p>	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	45 to 512	2.5	5.0	.0	821 to 896	1.5	2.5	2.5	928 to 29.	5.0	N/A	N/A	929 to 960.	1.5	N/A	N/A	2110 to 2220	10.0	N/A	N/A	
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																																
45 to 512	2.5	5.0	.0																																
821 to 896	1.5	2.5	2.5																																
928 to 29.	5.0	N/A	N/A																																
929 to 960.	1.5	N/A	N/A																																
2110 to 2220	10.0	N/A	N/A																																
Test setup																																			

Test Report	16070480-FCC-R1
Page	67 of 85

Procedure	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 $\pm 0.00025\%$ ($\pm 2.5\text{ppm}$) of the center frequency.
Remark	
Result	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail

Test Data ☒ Yes ☐ N/A

Test Plot ☐ Yes (See below) ☒ N/A

GSM Mode :

Cellular Band (Part 22H) result

Middle Channel, $f_0 = 836.6$ MHz				
Temperature (°C)	Power Supplied (V _{DC})	Frequency Error (Hz)	Frequency Error (ppm)	Limit (ppm)
-10	3.7	19	0.0227	2.5
0		15	0.0179	2.5
10		14	0.0167	2.5
20		8	0.0096	2.5
30		11	0.0131	2.5
40		16	0.0191	2.5
50		19	0.0227	2.5
55		21	0.0251	2.5
25	4.2	18	0.0215	2.5
	3.5	21	0.0251	2.5

PCS Band (Part 24E) result

Middle Channel, $f_0 = 1880$ MHz				
Temperature (°C)	Power Supplied (V _{DC})	Frequency Error (Hz)	Frequency Error (ppm)	Limit (ppm)
-10	3.7	21	0.0112	2.5
0		16	0.0085	2.5
10		13	0.0069	2.5
20		7	0.0037	2.5
30		12	0.0064	2.5
40		14	0.0074	2.5
50		18	0.0096	2.5
55		19	0.0101	2.5
25	4.2	18	0.0096	2.5
	3.5	16	0.0085	2.5

GPRS Mode :

Cellular Band (Part 22H) result

Middle Channel, $f_0 = 836.6$ MHz				
Temperature (°C)	Power Supplied (V _{DC})	Frequency Error (Hz)	Frequency Error (ppm)	Limit (ppm)
-10	3.7	11	0.0131	2.5
0		10	0.0120	2.5
10		17	0.0203	2.5
20		9	0.0108	2.5
30		14	0.0167	2.5
40		19	0.0227	2.5
50		13	0.0155	2.5
55		18	0.0215	2.5
25	4.2	12	0.0143	2.5
	3.5	17	0.0203	2.5

PCS Band (Part 24E) result

Middle Channel, $f_0 = 1880$ MHz				
Temperature (°C)	Power Supplied (V _{DC})	Frequency Error (Hz)	Frequency Error (ppm)	Limit (ppm)
-10	3.7	23	0.0122	2.5
0		15	0.0080	2.5
10		11	0.0059	2.5
20		8	0.0043	2.5
30		10	0.0053	2.5
40		17	0.0090	2.5
50		15	0.0080	2.5
55		14	0.0074	2.5
25	4.2	13	0.0069	2.5
	3.5	11	0.0059	2.5

EGPRS Mode :

Cellular Band (Part 22H) result

Middle Channel, $f_0 = 836.6$ MHz				
Temperature (°C)	Power Supplied (V _{DC})	Frequency Error (Hz)	Frequency Error (ppm)	Limit (ppm)
-10	3.7	8	0.0096	2.5
0		11	0.0131	2.5
10		12	0.0143	2.5
20		10	0.0120	2.5
30		13	0.0155	2.5
40		15	0.0179	2.5
50		18	0.0215	2.5
55		20	0.0239	2.5
25	4.2	11	0.0131	2.5
	3.5	9	0.0108	2.5

PCS Band (Part 24E) result

Middle Channel, $f_0 = 1880$ MHz				
Temperature (°C)	Power Supplied (V _{DC})	Frequency Error (Hz)	Frequency Error (ppm)	Limit (ppm)
-10	3.7	18	0.0096	2.5
0		8	0.0043	2.5
10		10	0.0053	2.5
20		12	0.0064	2.5
30		14	0.0074	2.5
40		13	0.0069	2.5
50		18	0.0096	2.5
55		17	0.0090	2.5
25	4.2	11	0.0059	2.5
	3.5	15	0.0080	2.5

RMC Mode :

UMTS-FDD Band V (Part 22H)

Middle Channel, $f_0 = 835$ MHz				
Temperature (°C)	Power Supplied (V _{DC})	Frequency Error (Hz)	Frequency Error (ppm)	Limit (ppm)
-10	3.7	16	0.0192	2.5
0		17	0.0204	2.5
10		13	0.0156	2.5
20		11	0.0132	2.5
30		13	0.0156	2.5
40		16	0.0192	2.5
50		17	0.0204	2.5
55		19	0.0228	2.5
25	4.2	18	0.0216	2.5
	3.5	21	0.0251	2.5

UMTS-FDD Band II (Part 24E)

Middle Channel, $f_0 = 1880$ MHz				
Temperature (°C)	Power Supplied (V _{DC})	Frequency Error (Hz)	Frequency Error (ppm)	Limit (ppm)
-10	3.7	15	0.0080	2.5
0		11	0.0059	2.5
10		8	0.0043	2.5
20		5	0.0027	2.5
30		8	0.0043	2.5
40		9	0.0048	2.5
50		11	0.0059	2.5
55		12	0.0064	2.5
25	4.2	13	0.0069	2.5
	3.5	15	0.0080	2.5

HSDPA Mode :

UMTS-FDD Band V (Part 22H)

Middle Channel, $f_0 = 835$ MHz				
Temperature (°C)	Power Supplied (V _{DC})	Frequency Error (Hz)	Frequency Error (ppm)	Limit (ppm)
-10	3.7	13	0.0156	2.5
0		11	0.0132	2.5
10		15	0.0180	2.5
20		16	0.0192	2.5
30		18	0.0216	2.5
40		14	0.0168	2.5
50		11	0.0132	2.5
55		12	0.0144	2.5
25	4.2	13	0.0156	2.5
	3.5	20	0.0240	2.5

UMTS-FDD Band II (Part 24E)

Middle Channel, $f_0 = 1880$ MHz				
Temperature (°C)	Power Supplied (V _{DC})	Frequency Error (Hz)	Frequency Error (ppm)	Limit (ppm)
-10	3.7	18	0.0096	2.5
0		20	0.0106	2.5
10		17	0.0090	2.5
20		13	0.0069	2.5
30		11	0.0059	2.5
40		9	0.0048	2.5
50		10	0.0053	2.5
55		13	0.0069	2.5
25	4.2	18	0.0096	2.5
	3.5	12	0.0064	2.5

HSUPA Mode :

UMTS-FDD Band V (Part 22H)

Middle Channel, $f_0 = 835$ MHz				
Temperature (°C)	Power Supplied (V _{DC})	Frequency Error (Hz)	Frequency Error (ppm)	Limit (ppm)
-10	3.7	15	0.0180	2.5
0		13	0.0156	2.5
10		18	0.0216	2.5
20		10	0.0120	2.5
30		17	0.0204	2.5
40		12	0.0144	2.5
50		16	0.0192	2.5
55		13	0.0156	2.5
25	4.2	17	0.0204	2.5
	3.5	11	0.0132	2.5

UMTS-FDD Band II (Part 24E)

Middle Channel, $f_0 = 1880$ MHz				
Temperature (°C)	Power Supplied (V _{DC})	Frequency Error (Hz)	Frequency Error (ppm)	Limit (ppm)
-10	3.7	17	0.0090	2.5
0		15	0.0080	2.5
10		18	0.0096	2.5
20		11	0.0059	2.5
30		8	0.0043	2.5
40		7	0.0037	2.5
50		11	0.0059	2.5
55		12	0.0064	2.5
25	4.2	15	0.0080	2.5
	3.5	11	0.0059	2.5

Annex A. TEST INSTRUMENT

Instrument	Model	Serial #	Cal Date	Cal Due	In use
RF Conducted Test					
Agilent ESA-E SERIES SPECTRUM ANALYZER	E4407B	MY45108319	09/16/2015	09/15/2016	<input checked="" type="checkbox"/>
Power Splitter	1#	1#	09/01/2015	08/31/2016	<input checked="" type="checkbox"/>
Universal Radio Communication Tester	CMU200	121393	09/25/2015	09/24/2016	<input checked="" type="checkbox"/>
Temperature/Humidity Chamber	UHL-270	001	10/09/2015	10/08/2016	<input checked="" type="checkbox"/>
DC Power Supply	E3640A	MY40004013	09/17/2015	09/16/2016	<input checked="" type="checkbox"/>
Radiated Emissions					
EMI test receiver	ESL6	100262	09/17/2015	09/16/2016	<input checked="" type="checkbox"/>
OPT 010 AMPLIFIER (0.1-1300MHz)	8447E	2727A02430	09/01/2015	08/31/2016	<input checked="" type="checkbox"/>
Microwave Preamplifier (1 ~ 26.5GHz)	8449B	3008A02402	03/24/2016	03/23/2017	<input checked="" type="checkbox"/>
Bilog Antenna (30MHz~6GHz)	JB6	A110712	09/21/2015	09/20/2016	<input checked="" type="checkbox"/>
Bilog Antenna (30MHz~2GHz)	JB1	A112017	09/21/2015	09/20/2016	<input checked="" type="checkbox"/>
Double Ridge Horn Antenna (1 ~18GHz)	AH-118	71259	09/24/2015	09/23/2016	<input checked="" type="checkbox"/>
Double Ridge Horn Antenna (1 ~18GHz)	AH-118	71283	09/24/2015	09/23/2016	<input checked="" type="checkbox"/>
SYNTHESIZED SIGNAL GENERATOR	8665B	3744A01293	09/17/2015	09/16/2016	<input checked="" type="checkbox"/>
Tunable Notch Filter	3NF-800/1000-S	AA4	09/01/2015	08/31/2016	<input checked="" type="checkbox"/>
Tunable Notch Filter	3NF-1000/2000-S	AM 4	09/01/2015	08/31/2016	<input checked="" type="checkbox"/>

Annex B. EUT And Test Setup Photographs

Annex B.i. Photograph: EUT External Photo





EUT - Top View



EUT - Bottom View



EUT - Left View



EUT - Right View

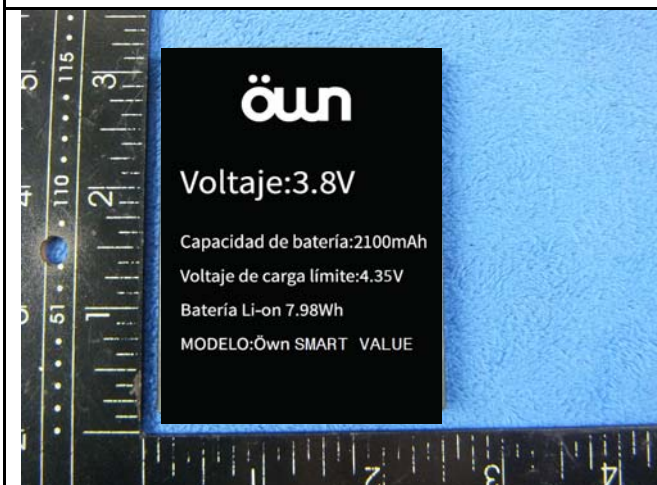
Annex B.ii. Photograph: EUT Internal Photo



Cover Off - Top View 1



Cover Off - Top View 2



Battery - Front View



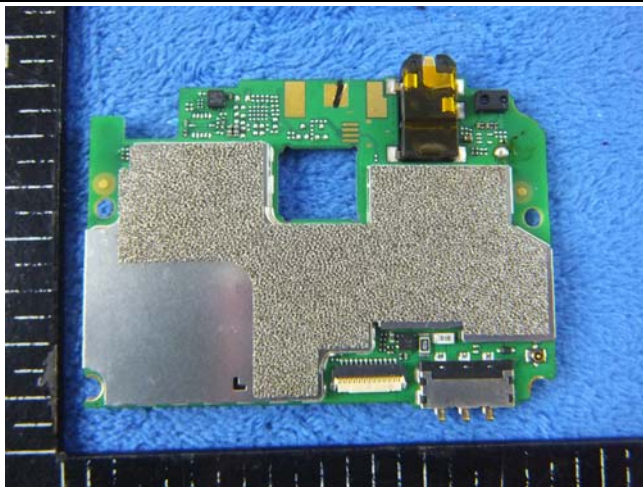
Battery - Rear View



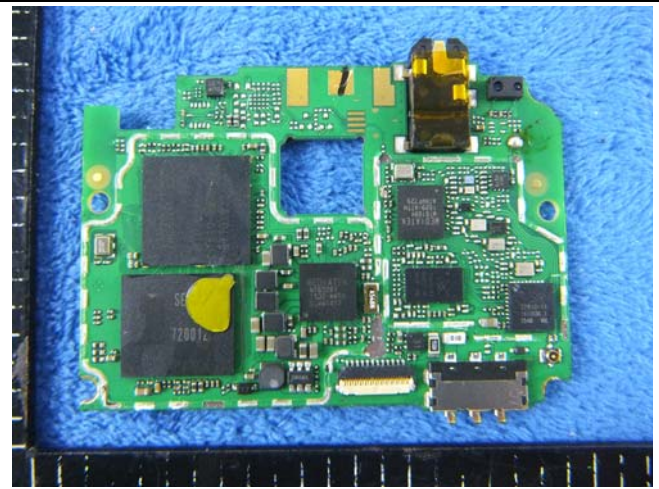
Mainboard with Shielding - Front View



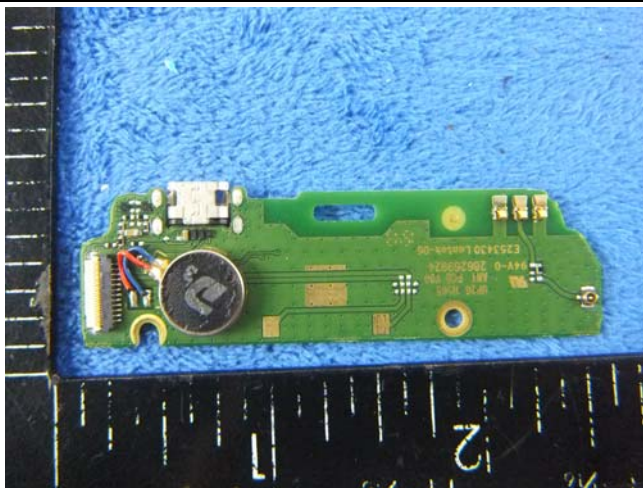
Mainboard without Shielding - Front View



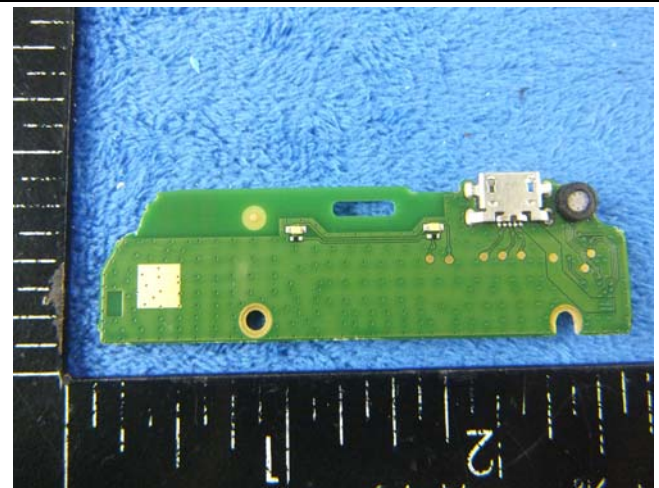
Mainboard with Shielding - Rear View



Mainboard without Shielding - Rear View



Small Mainboard - Front View



Small Mainboard - Rear View



LCD - Front View



LCD - Rear View



GSM/PCS/UMTS-FDD Antenna View

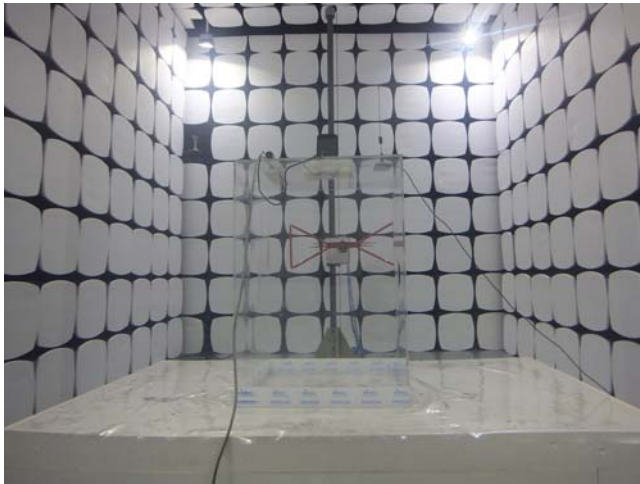


WIFI/BT/BLE/GPS - Antenna View

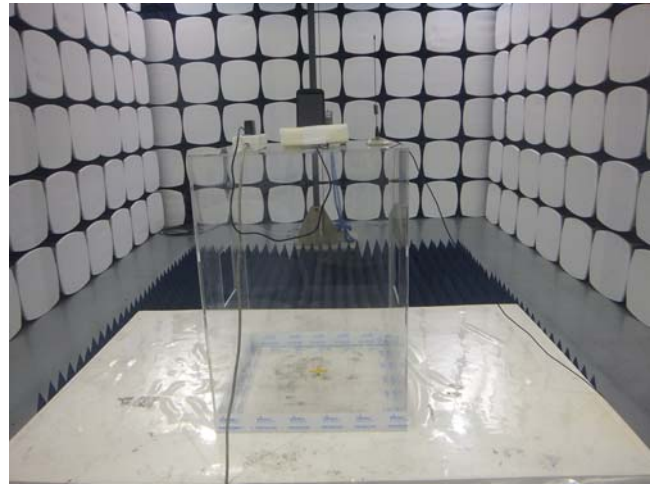


LTE - Antenna View

Annex B.iii. Photograph: Test Setup Photo



Radiated Spurious Emissions Test Setup Below 1GHz

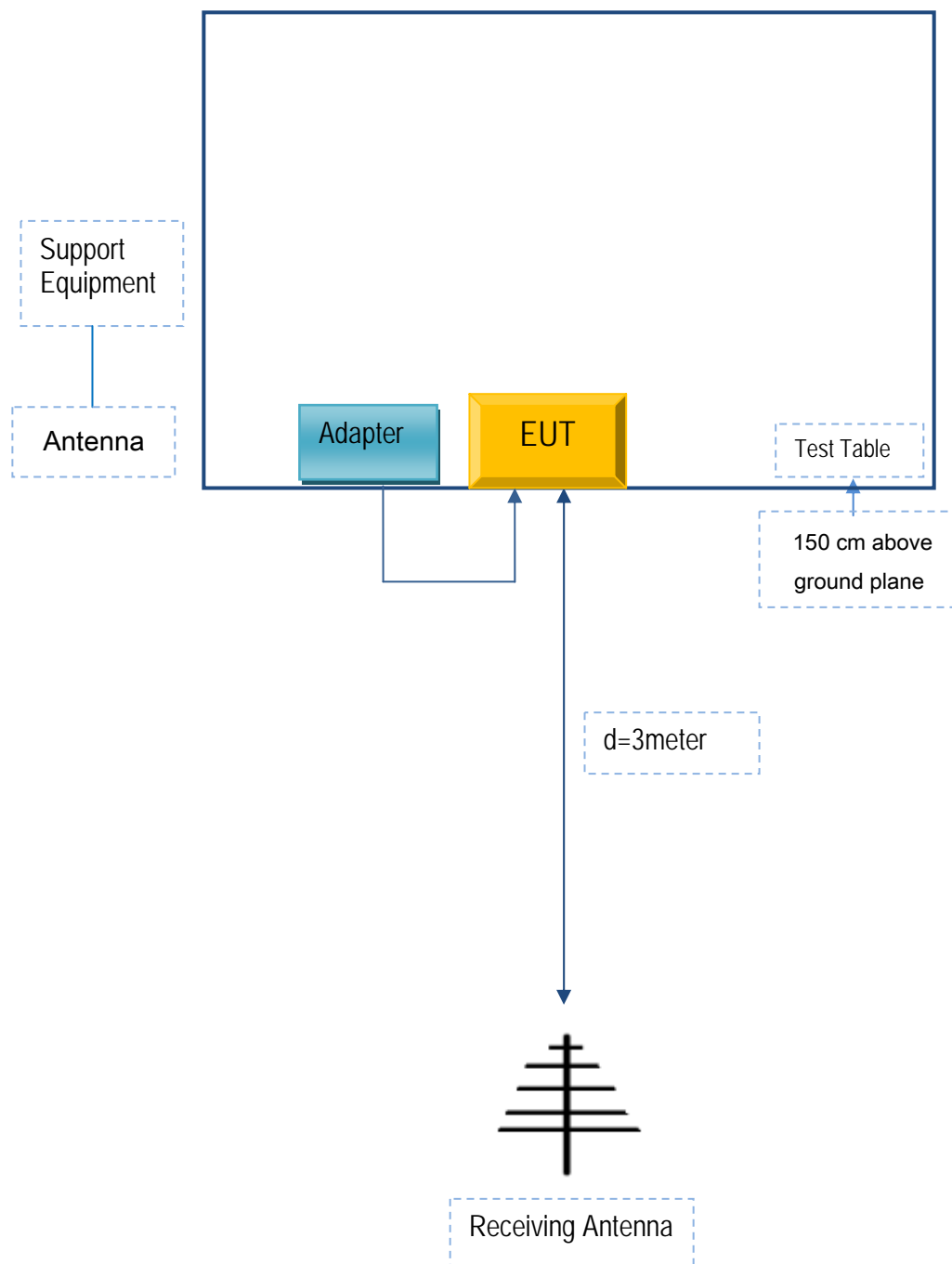


Radiated Spurious Emissions Test Setup Above
1GHz

Annex C. TEST SETUP AND SUPPORTING EQUIPMENT

Annex C.ii. TEST SET UP BLOCK

Block Configuration Diagram for Radiated Emissions



Annex C. ii. SUPPORTING EQUIPMENT DESCRIPTION

The following is a description of supporting equipment and details of cables used with the EUT.

Supporting Equipment:

Manufacturer	Equipment Description	Model	Serial No
MOBIWIRE MOBILES (NINGBO) CO.,LTD	Adapter	OWN SMART VALUE	C20160122

Supporting Cable:

Cable type	Shield Type	Ferrite Core	Length	Serial No
USB Cable	Un-shielding	No	0.8m	C20160122

Test Report	16070480-FCC-R1
Page	83 of 85

Annex C.ii. EUT OPERATING CONKITIONS

N/A

Test Report	16070480-FCC-R1
Page	84 of 85

Annex D. User Manual / Block Diagram / Schematics / Partlist

N/A

Test Report	16070480-FCC-R1
Page	85 of 85

Annex E. DECLARATION OF SIMILARITY

N/A