

# RF TEST REPORT



Report No.: 16070396-FCC-R1

Supersede Report No.: N/A

Applicant	Social Mobile Telecommunications	
Product Name	Mobile Phone	
Model No.	X325	
Serial No.	N/A	
Test Standard	FCC Part 22(H):2015 ;FCC Part 24(E):2015; ANSI/TIA-603-D: 2010	
Test Date	April 23 to May 19, 2016	
Issue Date	May 19, 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	
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Issued by:

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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

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## 1. Report Revision History

Report No.	Report Version	Description	Issue Date
16070396-FCC-R1	NONE	Original	May 19, 2016

## 2. Customer information

Applicant Name	Social Mobile Telecommunications
Applicant Add	16400 NW 2nd Ave Suite 201 Miami, Florida 33169
Manufacturer	SMT TELECOMM HK LIMITED
Manufacturer Add	Unit C 8/F, CHARMHILL CTR 50 HILLWOOD RD TST KL

## 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: X325

Serial Model: N/A

Date EUT received: April 22, 2016

Test Date(s): April 23 to May 19, 2016

Equipment Category : PCE

Antenna Gain: GSM850: -2.22dBi  
PCS1900: -1.14dBi  
UMTS-FDD Band V: -2.22dBi  
UMTS-FDD Band II: -1.14dBi  
Bluetooth/BLE: 2.93dBi  
WIFI: 2.93dBi  
GPS:0 dBi

Type of Modulation: GSM / GPRS: GMSK  
EGPRS: GMSK  
UMTS-FDD: QPSK, 16QAM  
802.11b/g/n: DSSS, OFDM  
Bluetooth: GFSK,  $\pi$ /4DQPSK, 8DPSK  
BLE: GFSK  
GPS:BPSK

RF Operating Frequency (ies): 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  
WIFI:802.11b/g/n(20M): 2412-2462 MHz  
WIFI:802.11n(40M): 2422-2452 MHz  
Bluetooth& BLE: 2402-2480 MHz  
GPS RX:1575.42 MHz

	GSM Voice:GSM850: 31.50 dBm
	PCS1900: 29.15 dBm
	GPRS:GSM850: 31.47 dBm
	PCS1900: 29.14 dBm
	EGPRS:GSM850: 31.49 dBm
Maximum Conducted	PCS1900: 29.14 dBm
AV Power to Antenna:	RMC:UMTS-FDD Band V : 24.31 dBm
	UMTS-FDD Band II : 24.57 dBm
	HSUPA:UMTS-FDD Band V : 22.68 dBm
	UMTS-FDD Band II : 23.14 dBm
	HSDPA:UMTS-FDD Band V : 22.751 dBm
	UMTS-FDD Band II : 23.21 dBm
	GSM Voice:GSM850: 26.98 dBm / ERP
	PCS1900: 26.85 dBm / EIRP
	GPRS:GSM850: 26.52 dBm / ERP
	PCS1900: 26.53 dBm / EIRP
	EGPRS:GSM850: 26.58 dBm / ERP
ERP/EIRP:	PCS1900: 26.58 dBm / EIRP
	RMC:UMTS-FDD Band V : 19.88 dBm / ERP
	UMTS-FDD Band II : 19.88 dBm / EIRP
	HSUPA:UMTS-FDD Band V : 19.59 dBm / ERP
	UMTS-FDD Band II : 19.72 dBm / EIRP
	HSDPA:UMTS-FDD Band V : 19.60 dBm / ERP
	UMTS-FDD Band II : 19.99 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

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Adapter :

Model:PC325

Input: AC 100-240V~50/60Hz,0.15A

Output: DC 5.0V,500mA

Input Power:

Battery:

Model: BPX325

Spec:3.7V, 4.44Wh

Battery Capacity:1200mAh

Limited charger voltage :4.2V

Trade Name :

N/A

GPRS/EGPRS Multi-slot class

8/10/12

FCC ID:

2ACLMX325



## 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); § 27.50(c.10) ; § 27.50(d.4)	RF Output Power	Compliance
§ 24.232 (d) ; § 27.50(d)	Peak-Average Ratio	Compliance
§ 2.1049; § 22.905; § 22.917; § 24.238; § 27.53(a.5)	99% & -26 dB Occupied Bandwidth	Compliance
§ 2.1051; § 22.917(a); § 24.238(a); § 27.53(h)	Spurious Emissions at Antenna Terminal	Compliance
§ 2.1053; § 22.917(a); § 24.238(a); § 27.53(h)	Field Strength of Spurious Radiation	Compliance
§ 22.917(a); § 24.238(a); § 27.53(h)	Out of band emission, Band Edge	Compliance
§ 2.1055; § 22.355; § 24.235; § 27.5(h); § 27.54	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

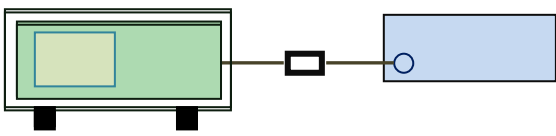
The EUT is a portable device, thus requires SAR evaluation;  
Please refer to RF Exposure Evaluation Report: 16070396-FCC-H.

## 6.2 RF Output Power

Temperature	24°C
Relative Humidity	56%
Atmospheric Pressure	1004mbar
Test date :	May 04 & May 18, 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"/>
§27.50 (c)	c)	EIRP: 30dBm	<input checked="" type="checkbox"/>

Test Setup	
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Test Procedure	<p>For Conducted Power:</p> <ul style="list-style-type: none"> <li>- The transmitter output port was connected to base station.</li> <li>- Set EUT at maximum power through base station.</li> <li>- Select lowest, middle, and highest channels for each band and different test mode.</li> </ul> <p>For ERP/EIRP:</p> <p>According with KDB 971168 v02r02</p> <ul style="list-style-type: none"> <li>- The transmitter was placed on a wooden turntable, and it was transmitting into a non-radiating load which was also placed on the turntable.</li> <li>- 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.</li> <li>- The frequency range up to tenth harmonic of the fundamental</li> </ul>
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	<p>frequency was investigated.</p> <ul style="list-style-type: none"> <li>- 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.</li> <li>- Spurious emissions in dB = <math>10 \log (\text{TX power in Watts}/0.001)</math> – the absolute level</li> <li>- Spurious attenuation limit in dB = <math>43 + 10 \text{ Log}_{10} (\text{power out in Watts})</math>.</li> </ul>
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	31.43	31.36	<b>31.50</b>	31±1	<b>29.15</b>	29.02	28.89	29±1
GPRS Multi-Slot Class 8 (1 uplink),GMSK	31.31	31.35	<b>31.47</b>	31±1	<b>29.14</b>	29.01	28.89	29±1
GPRS Multi-Slot Class 10 (2 uplink) GMSK	30.76	30.73	30.88	31±1	28.52	28.58	28.45	28±1
GPRS Multi-Slot Class 12 (4 uplink) GMSK	28.62	28.61	28.61	28±1	26.42	26.71	26.86	26±1
EGPRS Multi-Slot Class 8 (1 uplink) GMSK MCS1	31.43	31.39	<b>31.49</b>	31±1	<b>29.14</b>	29.01	28.87	29±1
EGPRS Multi-Slot Class 10 (2 uplink) GMSK MCS1	30.81	30.78	30.9	31±1	28.51	28.55	28.54	28±1
EGPRS Multi-Slot Class 12 (4 uplink) GMSK MCS1	28.57	28.5	28.57	28±1	28.41	28.54	28.31	28±1

Remark :

GPRS, CS1 coding scheme.

EGPRS, MCS1 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	23.65	23.5±1
	4175	835	<b>24.31</b>	23.5±1
	4233	846.6	23.69	23.5±1
HSDPA Subtest1	4132	826.4	22.65	22±1
	4175	835	22.34	22±1
	4233	846.6	22.38	22±1
HSDPA Subtest2	4132	826.4	22.56	22±1
	4175	835	22.45	22±1
	4233	846.6	22.58	22±1
HSDPA Subtest3	4132	826.4	22.59	22±1
	4175	835	<b>22.75</b>	22±1
	4233	846.6	22.32	22±1
HSDPA Subtest4	4132	826.4	22.33	22±1
	4175	835	22.56	22±1
	4233	846.6	22.54	22±1
HSUPA Subtest1	4132	826.4	22.58	22±1
	4175	835	22.56	22±1
	4233	846.6	22.54	22±1
HSUPA Subtest2	4132	826.4	22.59	22±1
	4175	835	<b>22.68</b>	22±1
	4233	846.6	22.67	22±1
HSUPA Subtest3	4132	826.4	22.39	22±1
	4175	835	22.64	22±1
	4233	846.6	22.56	22±1
HSUPA Subtest4	4132	826.4	22.49	22±1
	4175	835	22.57	22±1
	4233	846.6	22.67	22±1
HSUPA Subtest5	4132	826.4	22.49	22±1
	4175	835	22.58	22±1
	4233	846.6	22.57	22±1

## UMTS-FDD Band II

Band/ Time Slot configuration	Channel	Frequency	Average power (dBm)	Tune up Power tolerant
RMC 12.2kbps	9262	1852.4	<b>24.57</b>	23.8±1
	9400	1880	23.84	23.8±1
	9538	1907.6	24.43	23.8±1
HSDPA Subtest1	9262	1852.4	23.12	23±1
	9400	1880	23.09	23±1
	9538	1907.6	<b>23.21</b>	23±1
HSDPA Subtest2	9262	1852.4	22.98	23±1
	9400	1880	22.89	23±1
	9538	1907.6	22.87	23±1
HSDPA Subtest3	9262	1852.4	22.88	23±1
	9400	1880	22.85	23±1
	9538	1907.6	23.02	23±1
HSDPA Subtest4	9262	1852.4	23.15	23±1
	9400	1880	22.98	23±1
	9538	1907.6	23.07	23±1
HSUPA Subtest1	9262	1852.4	22.97	23±1
	9400	1880	22.98	23±1
	9538	1907.6	22.89	23±1
HSUPA Subtest2	9262	1852.4	22.78	23±1
	9400	1880	<b>23.14</b>	23±1
	9538	1907.6	22.98	23±1
HSUPA Subtest3	9262	1852.4	22.82	23±1
	9400	1880	22.86	23±1
	9538	1907.6	22.87	23±1
HSUPA Subtest4	9262	1852.4	22.88	23±1
	9400	1880	22.91	23±1
	9538	1907.6	22.93	23±1
HSUPA Subtest5	9262	1852.4	22.79	23±1
	9400	1880	22.64	23±1
	9538	1907.6	22.86	23±1

## GSM:

### 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	20.69	V	6.8	0.53	26.96	38.45
824.2	19.32	H	6.8	0.53	25.59	38.45
836.6	20.45	V	6.8	0.53	26.72	38.45
836.6	19.18	H	6.8	0.53	25.45	38.45
848.8	20.61	V	6.9	0.53	<b>26.98</b>	38.45
848.8	19.24	H	6.9	0.53	25.61	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	19.73	V	7.88	0.85	26.76	33
1850.2	18.28	H	7.88	0.85	25.31	33
1880	19.82	V	7.88	0.85	<b>26.85</b>	33
1880	18.31	H	7.88	0.85	25.34	33
1909.8	19.67	V	7.86	0.85	26.68	33
1909.8	18.26	H	7.86	0.85	25.27	33



## GPRS:

### 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	20.21	V	6.8	0.53	26.48	38.45
824.2	19.32	H	6.8	0.53	25.59	38.45
836.6	20.25	V	6.8	0.53	<b>26.52</b>	38.45
836.6	18.81	H	6.8	0.53	25.08	38.45
848.8	18.76	V	6.9	0.53	25.13	38.45
848.8	18.33	H	6.9	0.53	24.7	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	18.13	V	7.88	0.85	25.16	33
1850.2	17.75	H	7.88	0.85	24.78	33
1880	19.5	V	7.88	0.85	<b>26.53</b>	33
1880	17.77	H	7.88	0.85	24.8	33
1909.8	17.63	V	7.86	0.85	24.64	33
1909.8	16.92	H	7.86	0.85	23.93	33

## EGPRS:

### 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	18.12	V	6.8	0.53	24.39	38.45
824.2	20.31	H	6.8	0.53	<b>26.58</b>	38.45
836.6	19.56	V	6.8	0.53	25.83	38.45
836.6	17.88	H	6.8	0.53	24.15	38.45
848.8	17.62	V	6.9	0.53	23.99	38.45
848.8	16.73	H	6.9	0.53	23.1	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	17.55	V	7.88	0.85	24.58	33
1850.2	18.39	H	7.88	0.85	25.42	33
1880	19.52	V	7.88	0.85	26.55	33
1880	19.55	H	7.88	0.85	<b>26.58</b>	33
1909.8	16.96	V	7.86	0.85	23.97	33
1909.8	17.37	H	7.86	0.85	24.38	33

## RMC:

### 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	13.48	V	6.8	0.53	19.75	38.45
826.4	12.71	H	6.8	0.53	18.98	38.45
835	13.55	V	6.8	0.53	19.82	38.45
835	12.68	H	6.8	0.53	18.95	38.45
846.6	13.51	V	6.9	0.53	<b>19.88</b>	38.45
846.6	12.76	H	6.9	0.53	19.13	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	13.48	V	6.8	0.53	19.75	38.45
826.4	12.71	H	6.8	0.53	18.98	38.45
835	13.55	V	6.8	0.53	19.82	38.45
835	12.68	H	6.8	0.53	18.95	38.45
846.6	13.51	V	6.9	0.53	<b>19.88</b>	38.45
846.6	12.76	H	6.9	0.53	19.13	38.45

## HSUPA:

### 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	13.25	V	6.8	0.53	19.52	38.45
826.4	13.32	H	6.8	0.53	<b>19.59</b>	38.45
835	12.52	V	6.8	0.53	18.79	38.45
835	12.45	H	6.8	0.53	18.72	38.45
846.6	11.73	V	6.9	0.53	18.1	38.45
846.6	11.11	H	6.9	0.53	17.48	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	12.52	V	7.88	0.85	19.55	33
826.4	12.66	H	7.88	0.85	19.69	33
835	12.23	V	7.88	0.85	19.26	33
835	12.69	H	7.88	0.85	<b>19.72</b>	33
846.6	12.52	V	7.86	0.85	19.53	33
846.6	11.33	H	7.86	0.85	18.34	33

## HSDPA:

### 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	13.33	V	6.8	0.53	<b>19.6</b>	38.45
826.4	12.25	H	6.8	0.53	18.52	38.45
835	11.53	V	6.8	0.53	17.8	38.45
835	11.11	H	6.8	0.53	17.38	38.45
846.6	12.69	V	6.9	0.53	19.06	38.45
846.6	11.52	H	6.9	0.53	17.89	38.45

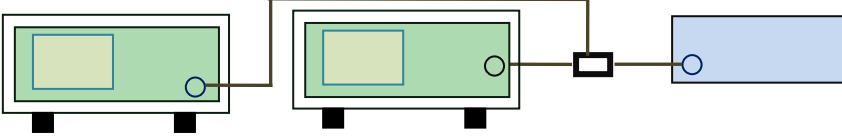
### EIRP for UMTS-FDD Band II (Part 24E)

Frequency (MHz)	Substituted level (dBm)	Antenna Polarization	Antenna Gain correction (dBi)	Cable Loss (dB)	Absolute Level (dBm)	Limit (dBm)
826.4	11.56	V	7.88	0.85	18.59	33
826.4	12.33	H	7.88	0.85	19.36	33
835	12.69	V	7.88	0.85	19.72	33
835	12.96	H	7.88	0.85	<b>19.99</b>	33
846.6	11.62	V	7.86	0.85	18.63	33
846.6	11.55	H	7.86	0.85	18.56	33

### 6.3 Peak-Average Ratio

Temperature	24°C
Relative Humidity	56%
Atmospheric Pressure	1004mbar
Test date :	May 04 & May 19, 2016
Tested By :	Winnie Zhang

Requirement(s):

Spec	Item	Requirement	Applicable
§24.232(d) § 27.50(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><b>According with KDB 971168 v02r02</b></p> <ol style="list-style-type: none"> <li>1. The signal analyzer' s CCDF measurement profile is enabled</li> <li>2. Frequency = carrier center frequency</li> <li>3. Measurement BW &gt; Emission bandwidth of signal</li> <li>4. The signal analyzer was set to collect one million samples to generate the CCDF curve</li> <li>5. The measurement interval was set depending on the type of signal analyzed. For continuous signals (&gt;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</li> </ol>		
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	30.16	29.15	1.01
1880	30.56	29.02	1.54
1909.8	30.45	28.89	1.56

#### GPRS 1900 PK-AV POWER(PART 24E)

Frequency (MHz)	Conducted power(dBm)		Peak-Average Ratio(PAR)
	Peak	Average	
1850.2	30.52	29.53	0.99
1880	30.47	29.47	1.00
1909.8	30.56	29.46	1.10

#### EGPRS 1900 PK-AV POWER(PART 24E)

Frequency (MHz)	Conducted power(dBm)		Peak-Average Ratio(PAR)
	Peak	Average	
1850.2	30.33	29.23	1.10
1880	30.52	29.54	0.98
1909.8	30.47	29.32	1.15

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

Frequency (MHz)	Conducted power(dBm)		Peak-Average Ratio(PAR)
	Peak	Average	
1852.4	26.89	24.57	2.32
1880	27.15	23.84	3.31
1907.6	26.59	24.43	2.16

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

Frequency (MHz)	Conducted power(dBm)		Peak-Average Ratio(PAR)
	Peak	Average	
1852.4	26.62	24.33	2.29
1880	27.35	24.01	3.34
1907.6	26.63	24.43	2.20

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

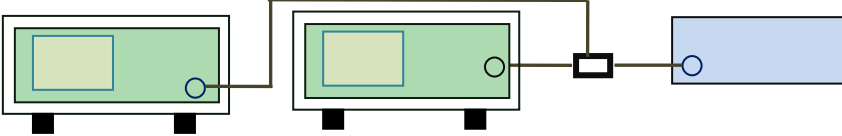
Frequency (MHz)	Conducted power(dBm)		Peak-Average Ratio(PAR)
	Peak	Average	
1852.4	26.72	24.62	2.10
1880	27.52	25.1	2.42
1907.6	25.95	23.24	2.71



## 6.4 Occupied Bandwidth

Temperature	22°C
Relative Humidity	58%
Atmospheric Pressure	1025mbar
Test date :	April 25 & May 18, 2016
Tested By :	Winnie Zhang

### Requirement(s):

Spec	Item	Requirement	Applicable
§2.1049, §22.917, §22.905 §24.238 §27.53(a)	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"> <li>- The EUT was connected to Spectrum Analyzer and Base Station via power divider.</li> <li>- The 99% and 26 dB occupied bandwidth (BW) of the middle channel for the highest RF powers.</li> </ul>		
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	245.2996	315.586
190	836.6	244.7251	315.430
251	848.8	243.7506	312.608

### PCS Band (Part 24E) result

Channel	Frequency (MHz)	99% Occupied Bandwidth (kHz)	26 dB Bandwidth (kHz)
512	1850.2	241.7808	320.323
661	1880.0	247.9999	317.565
810	1909.8	247.0860	317.710

## GPRS:

### Cellular Band (Part 22H) result

Channel	Frequency (MHz)	99% Occupied Bandwidth (kHz)	26 dB Bandwidth (kHz)
128	824.2	244.5775	321.333
190	836.6	246.5146	316.720
251	848.8	242.9932	320.435

### PCS Band (Part 24E) result

Channel	Frequency (MHz)	99% Occupied Bandwidth (kHz)	26 dB Bandwidth (kHz)
512	1850.2	250.0476	319.598
661	1880.0	243.3472	321.447
810	1909.8	246.3077	317.534

## EGPRS:

### Cellular Band (Part 22H) result

Channel	Frequency (MHz)	99% Occupied Bandwidth (kHz)	26 dB Bandwidth (kHz)
128	824.2	247.6206	320.141
190	836.6	246.1525	312.925
251	848.8	247.4541	322.230

### PCS Band (Part 24E) result

Channel	Frequency (MHz)	99% Occupied Bandwidth (kHz)	26 dB Bandwidth (kHz)
512	1850.2	247.3734	318.858
661	1880.0	247.4390	316.642
810	1909.8	247.2470	323.734

## RMC:

### UMTS-FDD Band V (Part 22H)

Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)	26 dB Bandwidth (MHz)
4132	826.4	4.1498	4.671
4175	835.0	4.1601	4.684
4233	846.6	4.1421	4.684

### UMTS-FDD Band II (Part 24E)

Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)	26 dB Bandwidth (MHz)
9262	1852.4	4.1532	4.702
9400	1880.0	4.1596	4.705
9538	1907.6	4.1654	4.706

## HSUPA:

### UMTS-FDD Band V (Part 22H)

Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)	26 dB Bandwidth (MHz)
4132	826.4	4.1555	4.684
4175	835.0	4.1350	4.704
4233	846.6	4.1438	4.705

### UMTS-FDD Band II (Part 24E)

Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)	26 dB Bandwidth (MHz)
9262	1852.4	4.1736	4.775
9400	1880.0	4.1821	4.722
9538	1907.6	4.1678	4.761

## HSDPA:

### UMTS-FDD Band V (Part 22H)

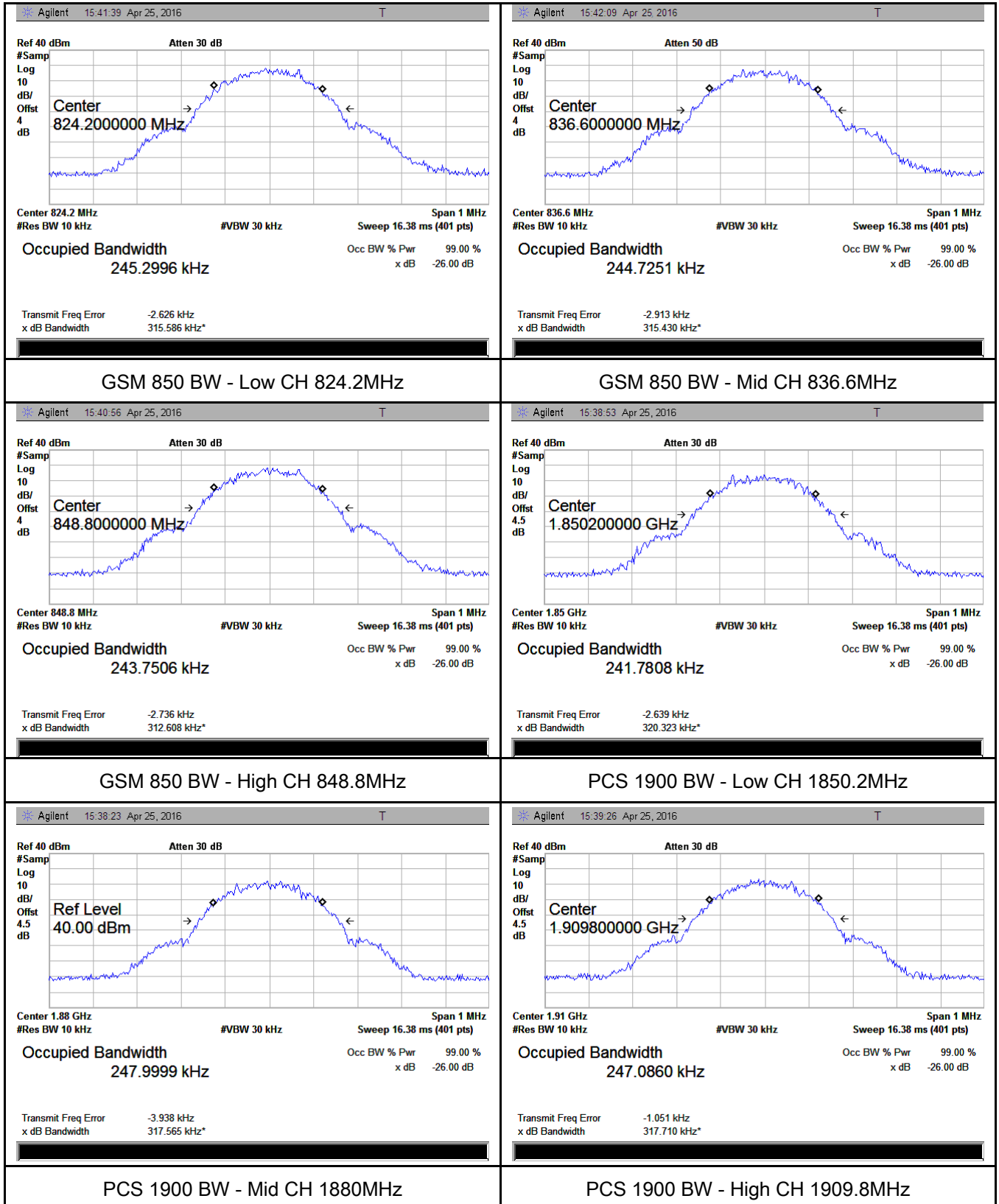
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)	26 dB Bandwidth (MHz)
4132	826.4	4.1717	4.737
4175	835.0	4.1419	4.682
4233	846.6	4.1340	4.687

### UMTS-FDD Band II (Part 24E)

Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)	26 dB Bandwidth (MHz)
9262	1852.4	4.1633	4.746
9400	1880.0	4.1685	4.696
9538	1907.6	4.1795	4.744

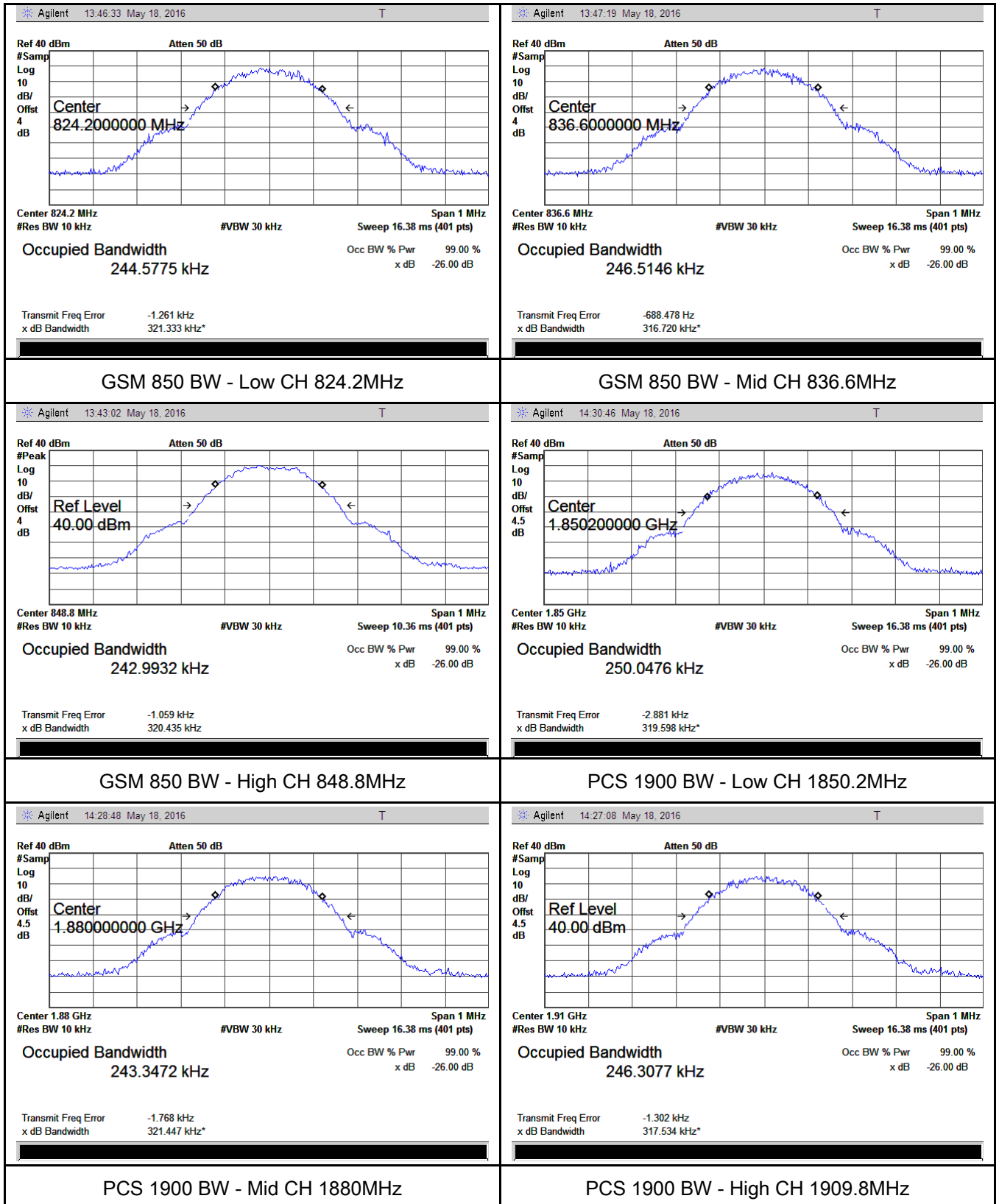
## GSM:

### Test Plots



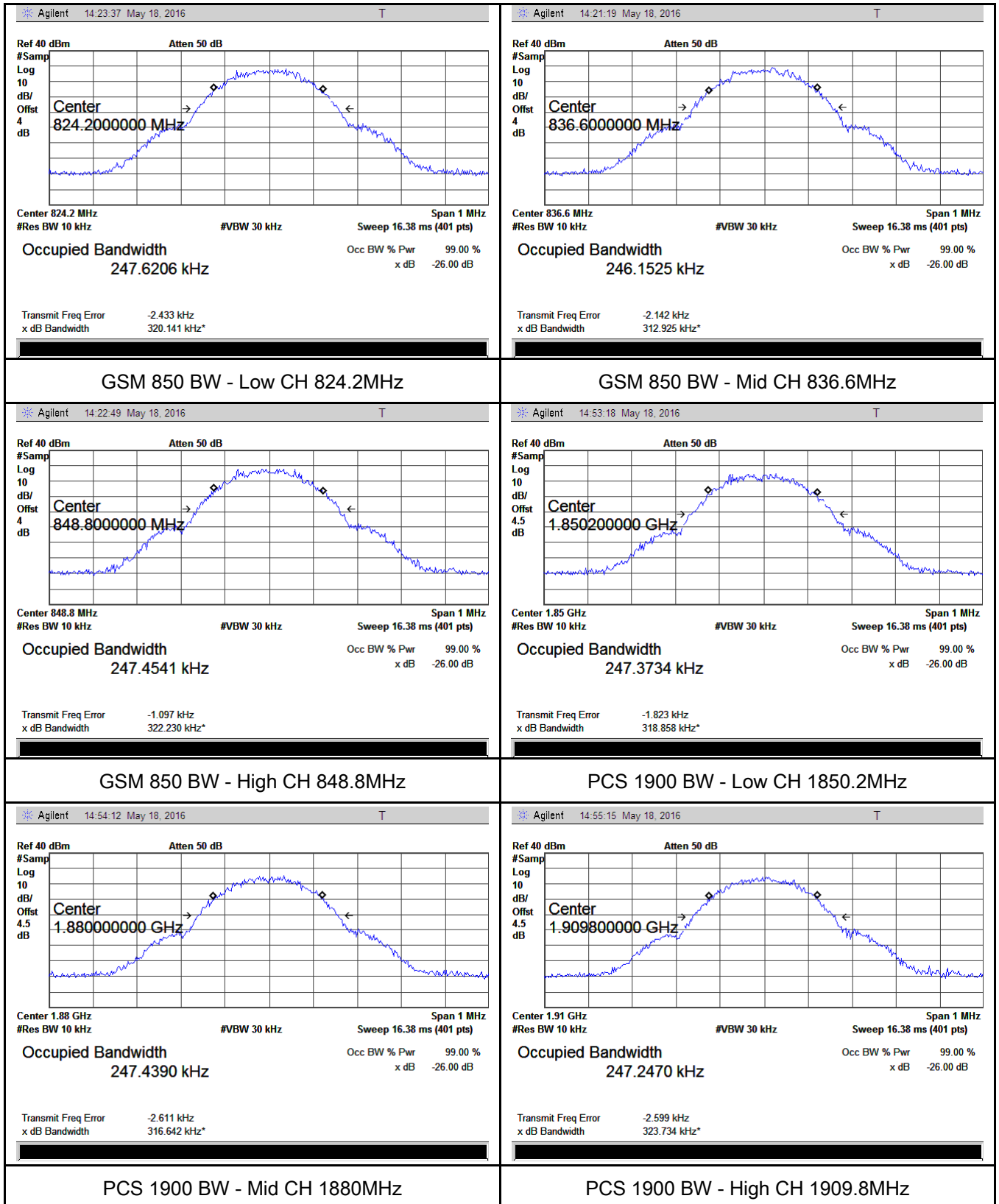
## GPRS:

### Test Plots



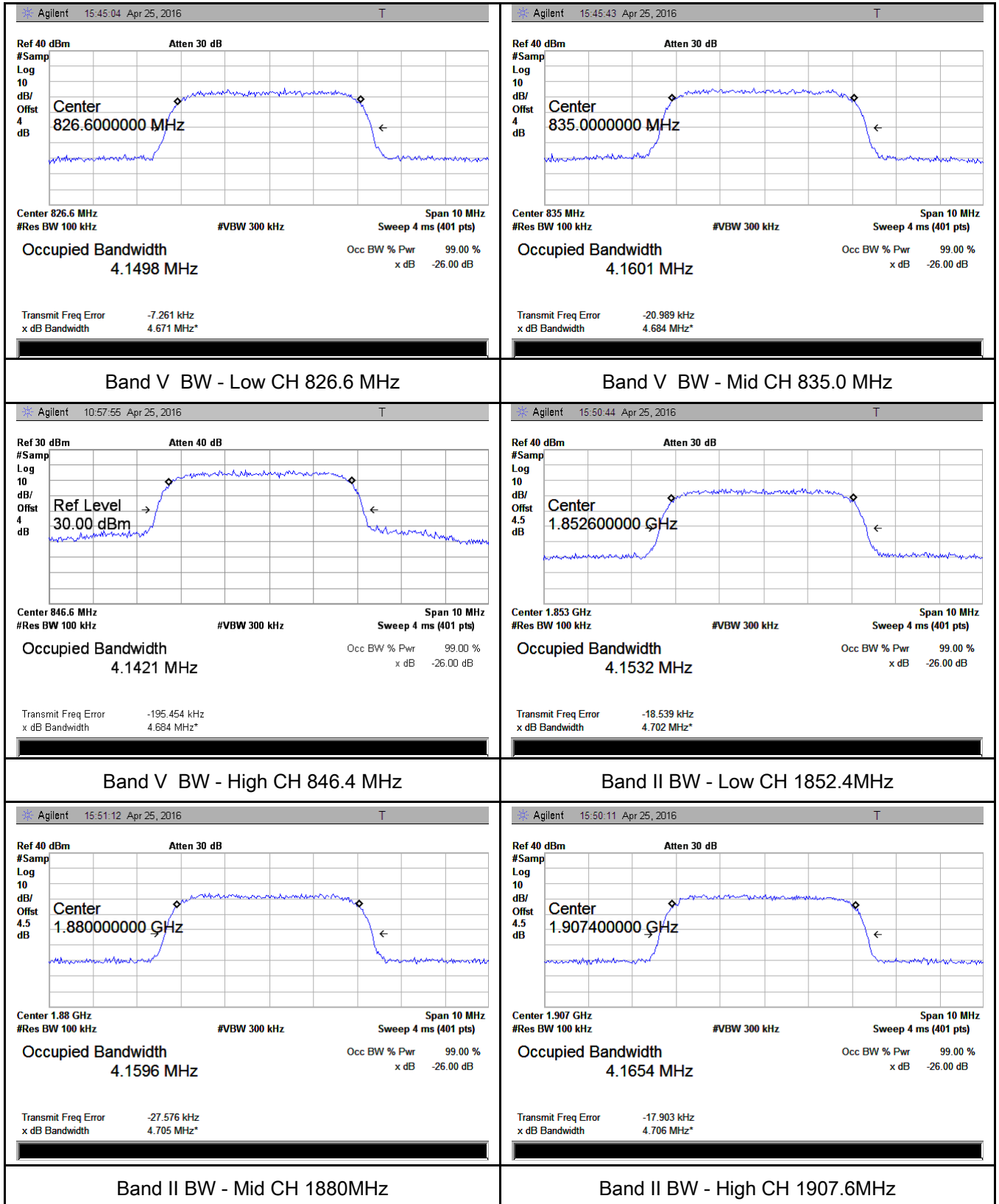
## EGPRS:

### Test Plots



## RCM:

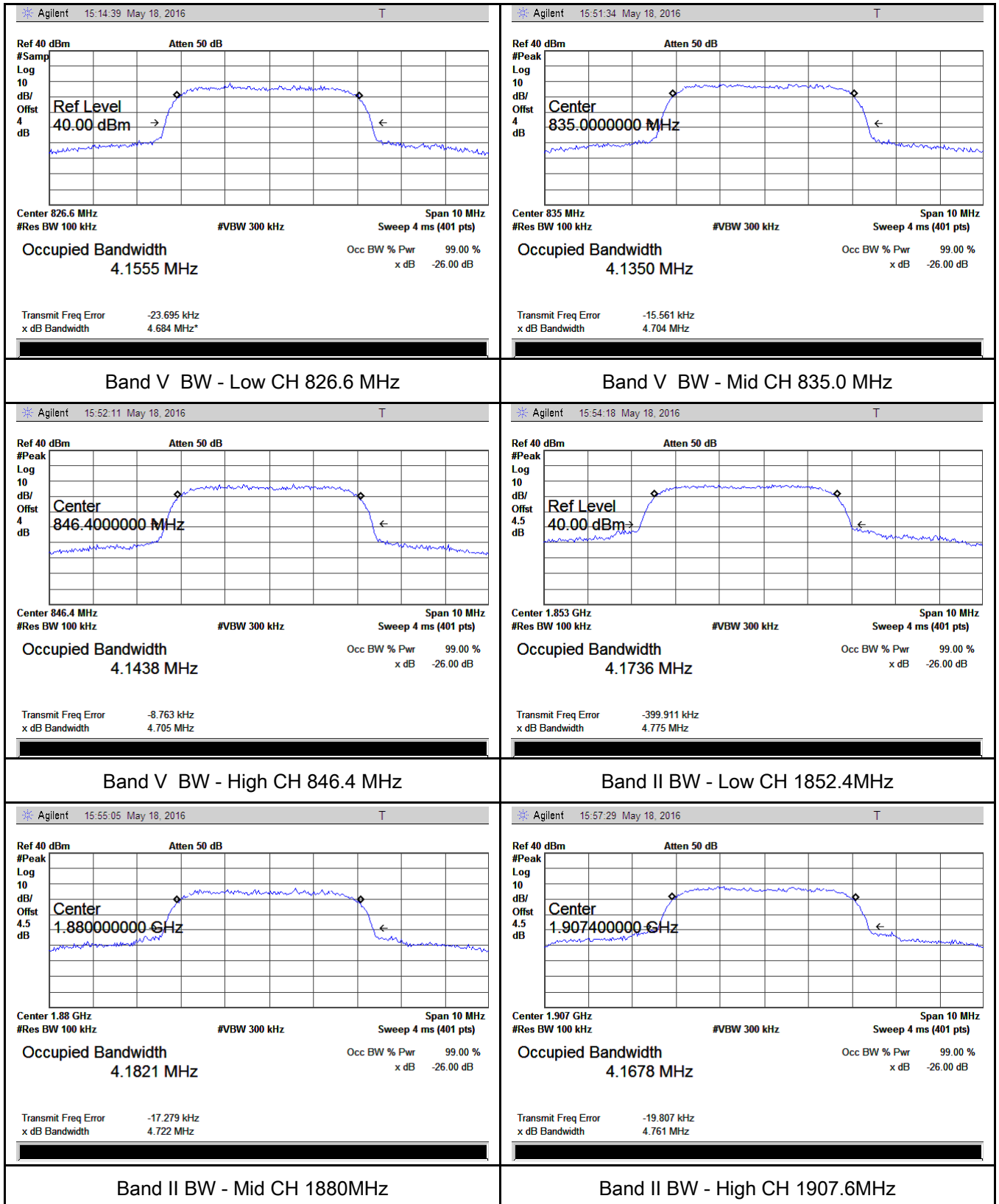
### Test Plots





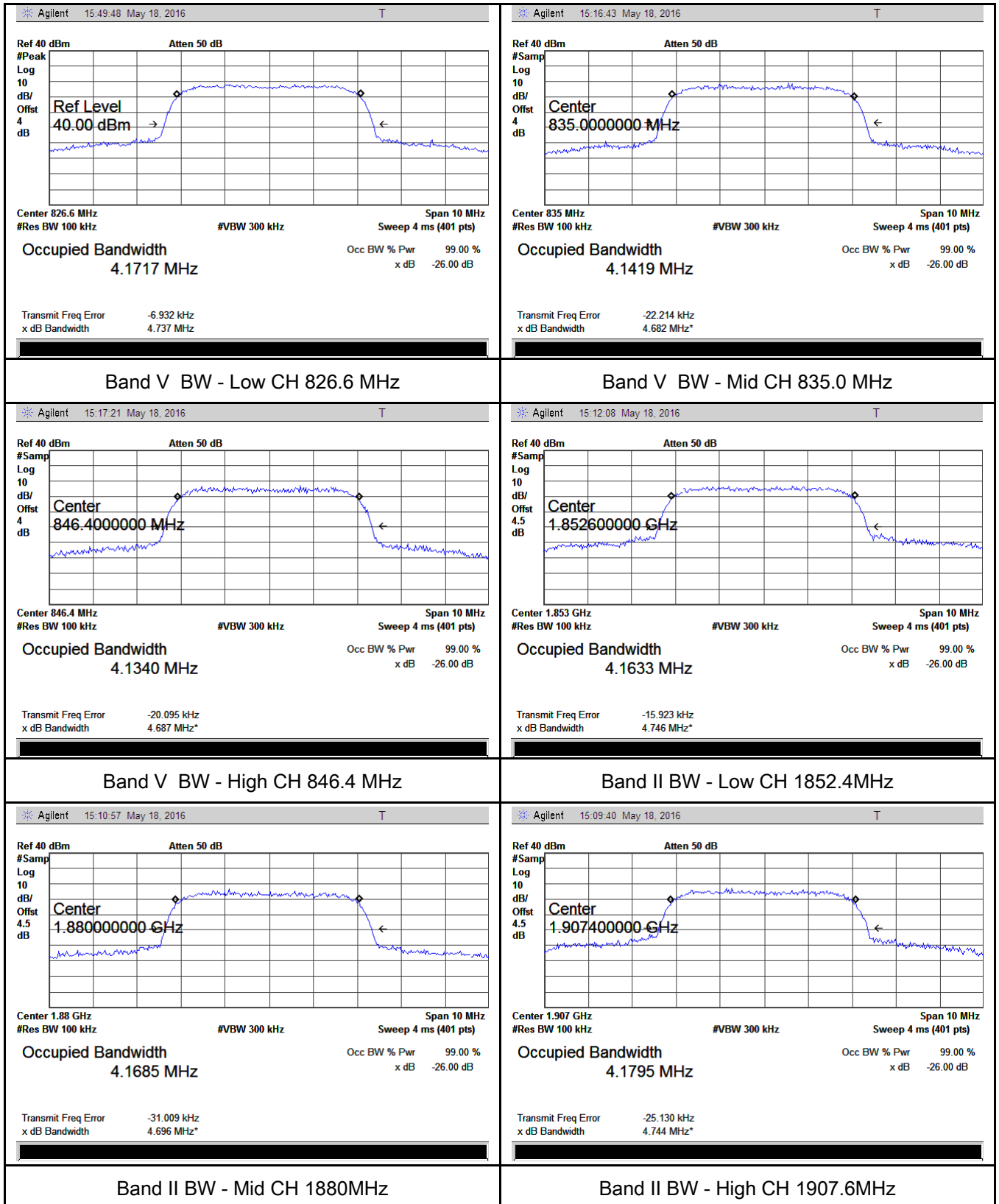
## HSUPA:

### Test Plots



## HSDPA:

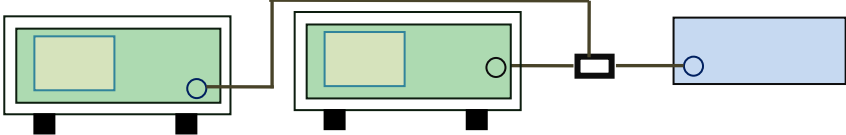
### Test Plots



## 6.5 Spurious Emissions at Antenna Terminals

Temperature	22°C
Relative Humidity	58%
Atmospheric Pressure	1025mbar
Test date :	April 25 & May 18, 2016
Tested By :	Winnie Zhang

### Requirement(s):

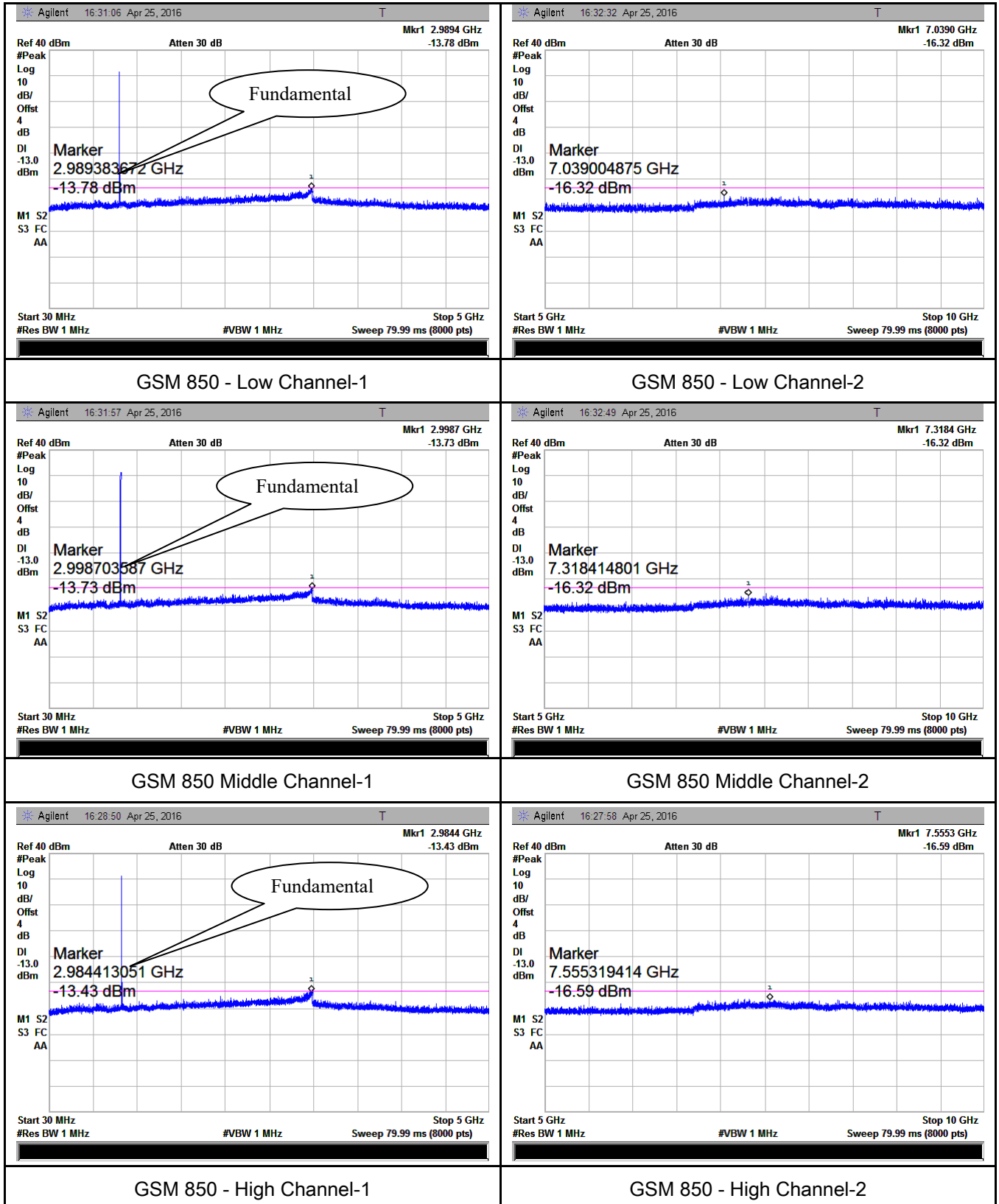
Spec	Item	Requirement	Applicable
§2.1051, §22.917(a)& §24.238(a) § 27.53(h)	a)	The power of any emission outside of the authorized operating frequency ranges must be lower than the transmitter power (P) by a factor of at least $43 + 10 \log (P)$ dB	<input checked="" type="checkbox"/>
Test Setup			
Test Procedure	<ul style="list-style-type: none"> <li>- The EUT was connected to Spectrum Analyzer and Base Station via power divider.</li> <li>- The Band Edges of low and high channels for the highest RF powers were measured.</li> <li>- Setting RBW as roughly BW/100.</li> </ul>		
Remark			
Result	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail		

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

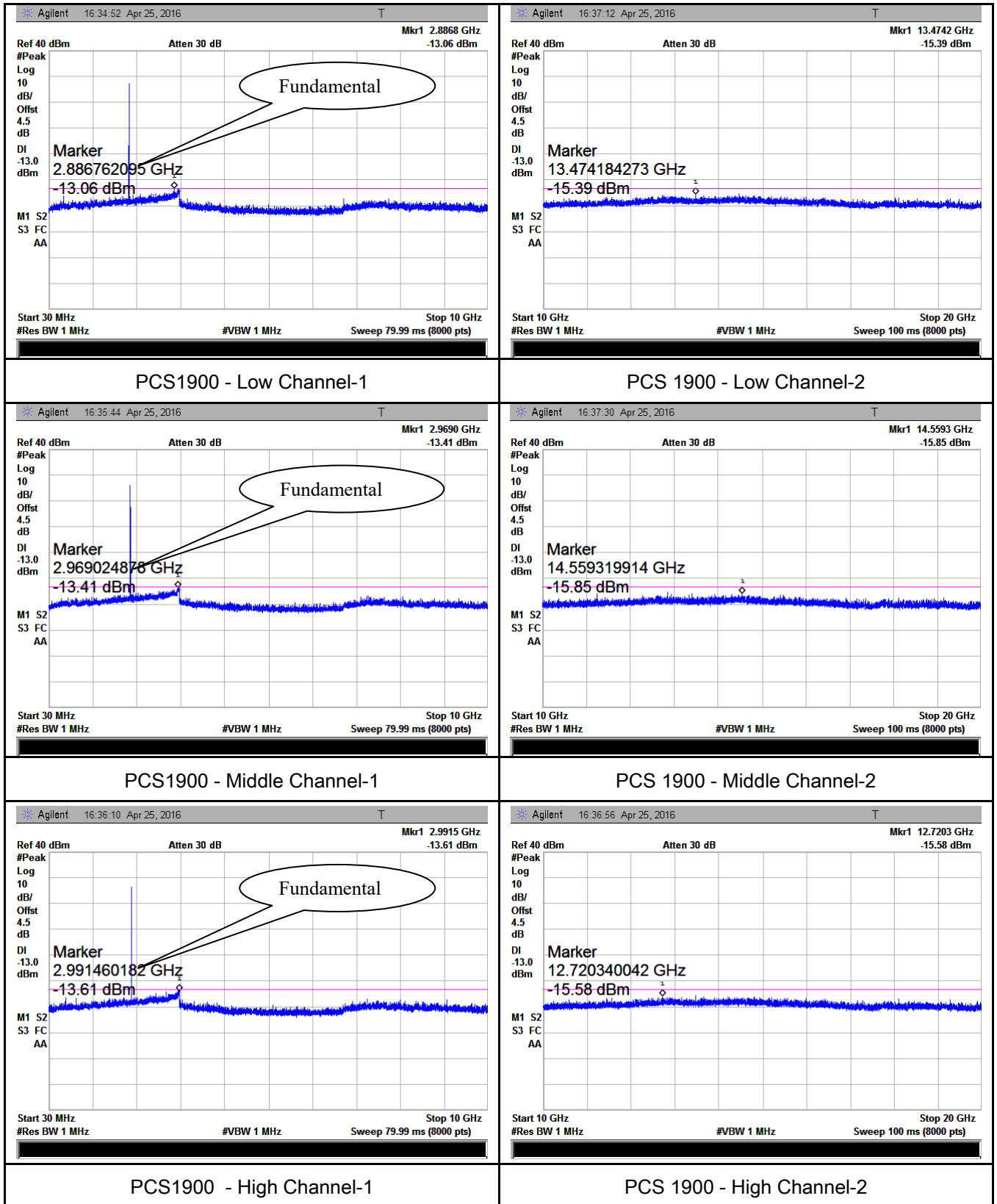
## GSM:

### Test Plots

#### Cellular Band (Part 22H) result



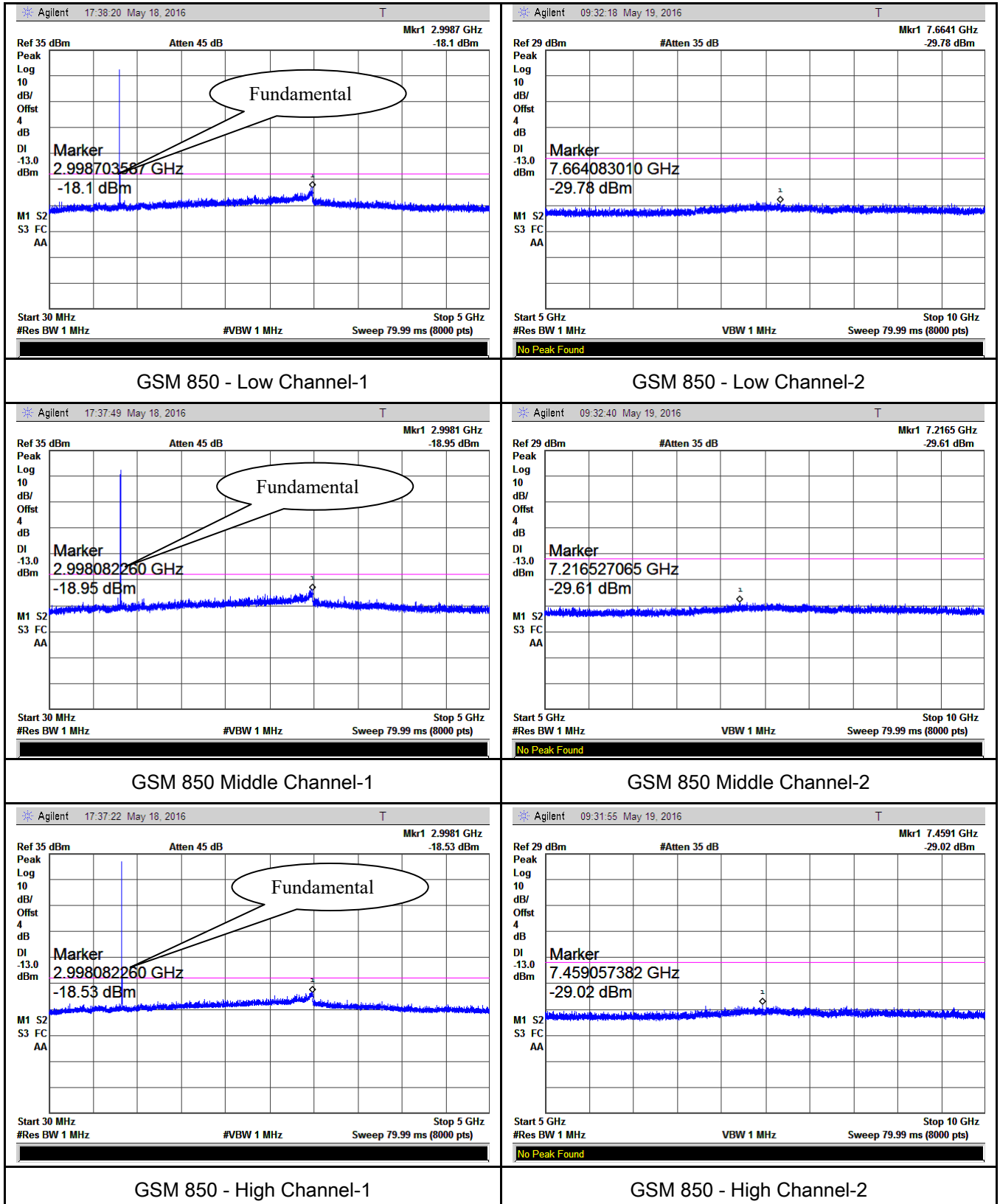
## PCS Band (Part24E) result



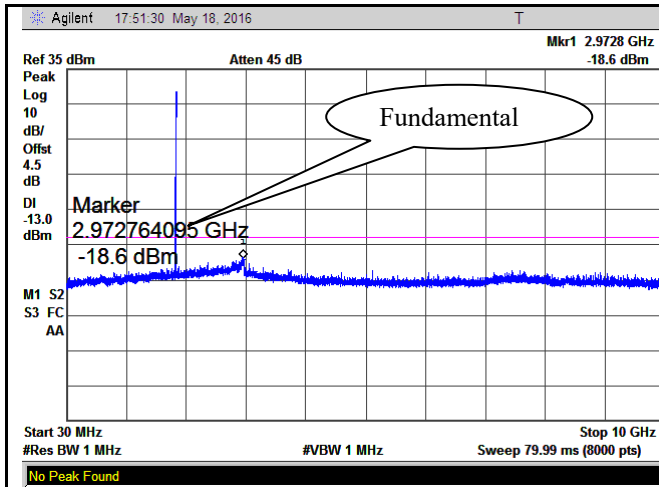
GPRS:

Test Plots

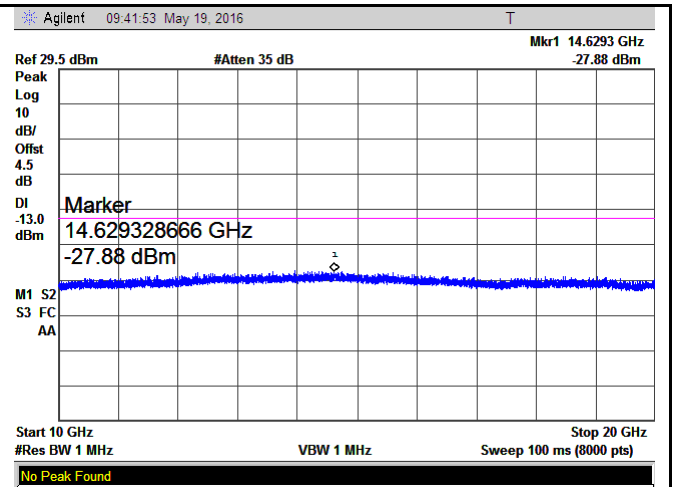
Cellular Band (Part 22H) result



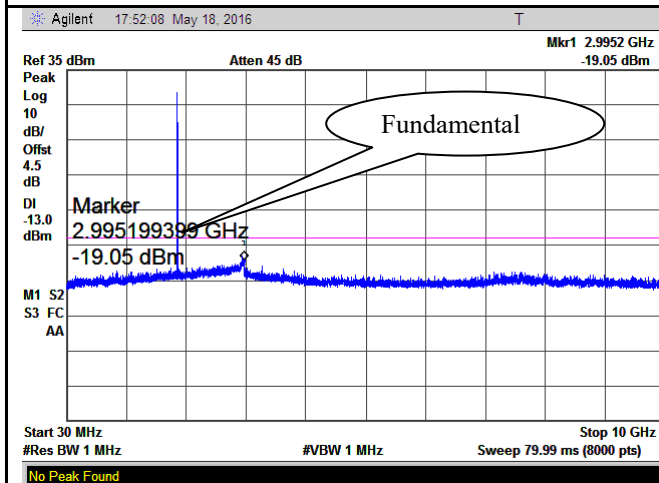
## PCS Band (Part24E) result



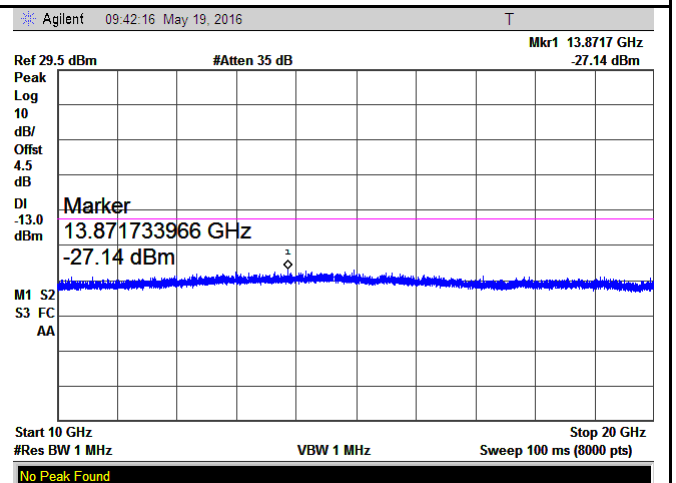
PCS1900 - Low Channel-1



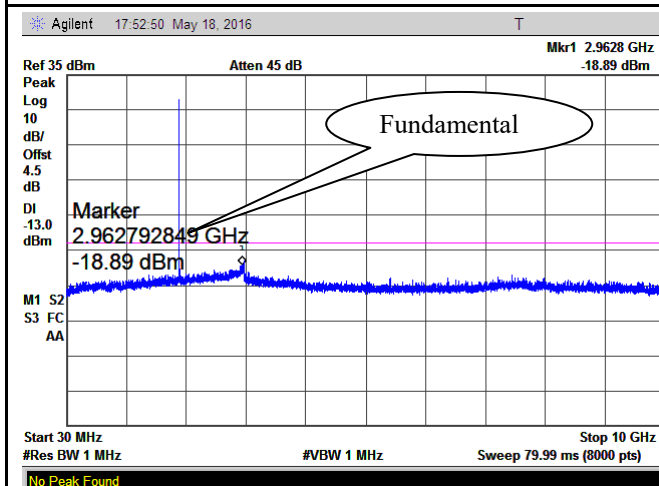
PCS 1900 - Low Channel-2



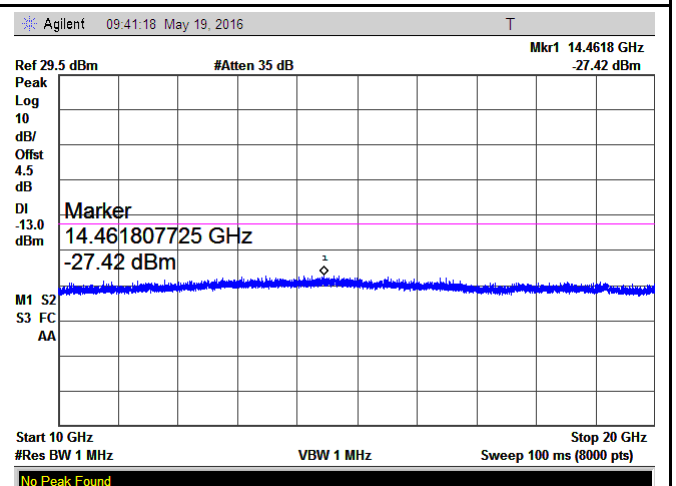
PCS1900 - Middle Channel-1



PCS 1900 - Middle Channel-2



PCS1900 - High Channel-1

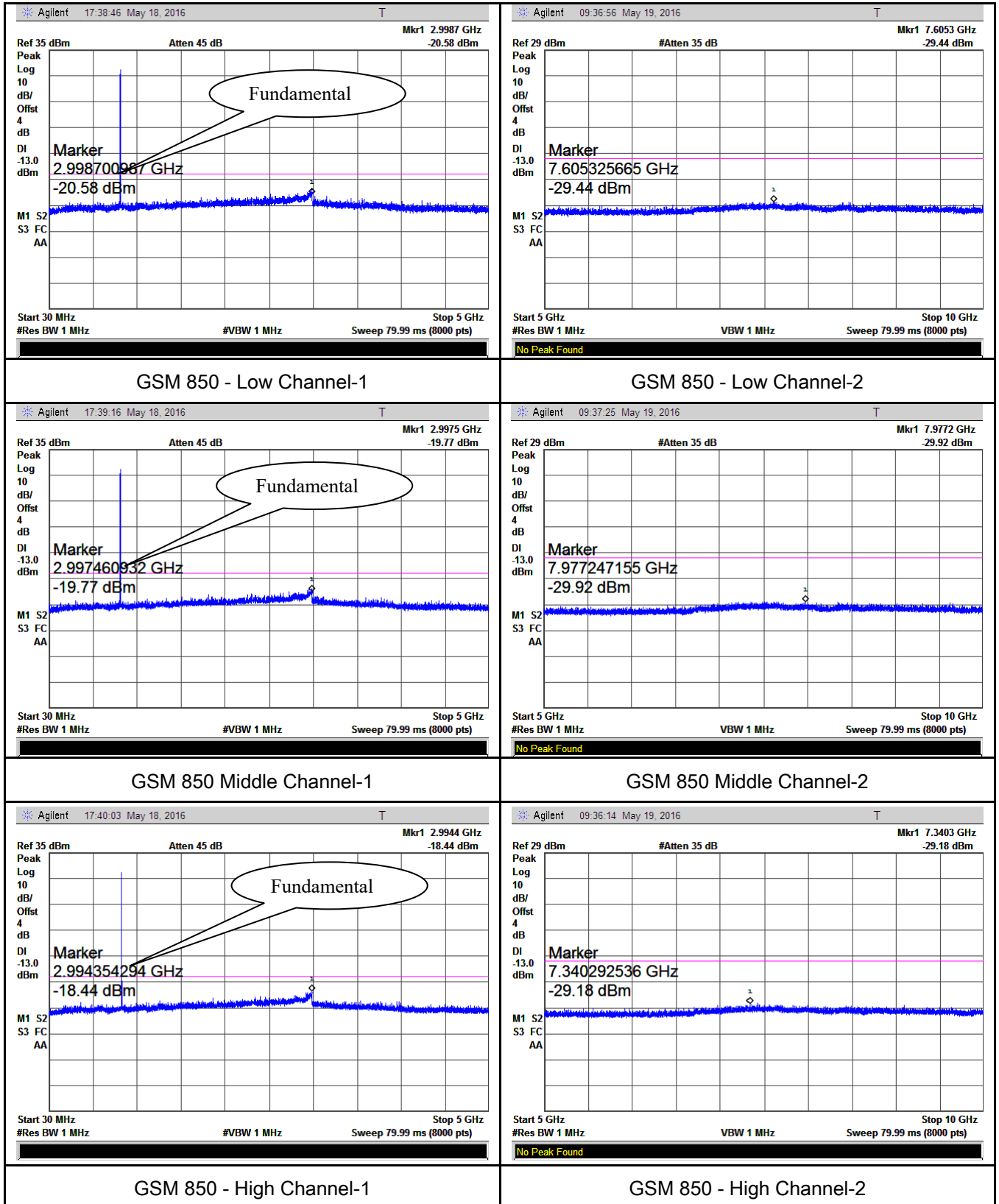


PCS 1900 - High Channel-2

## EGPRS:

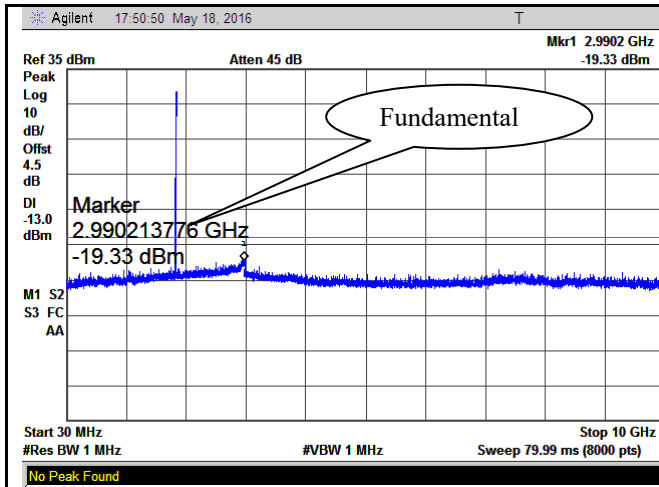
### Test Plots

#### Cellular Band (Part 22H) result

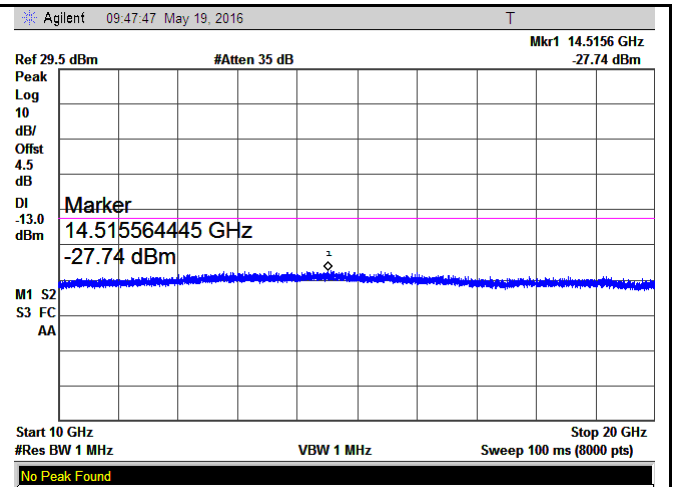




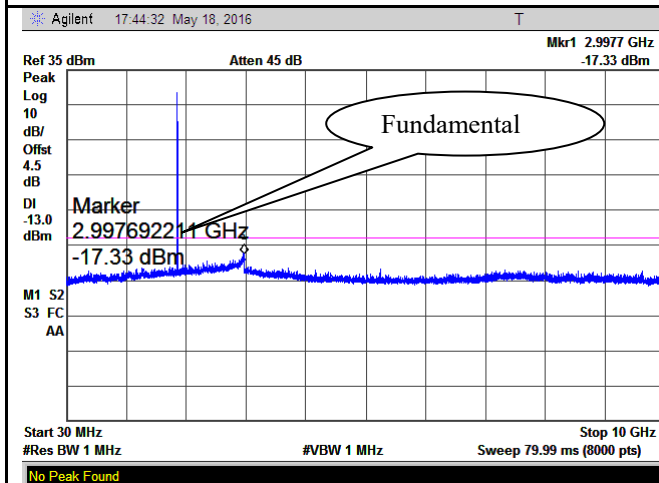
## PCS Band (Part24E) result



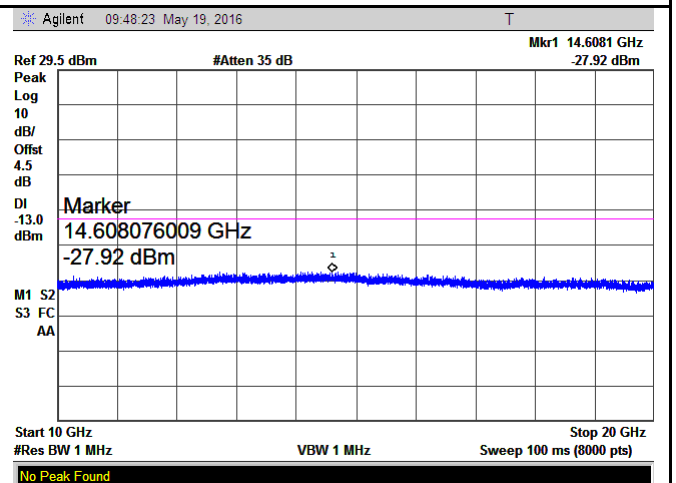
PCS1900 - Low Channel-1



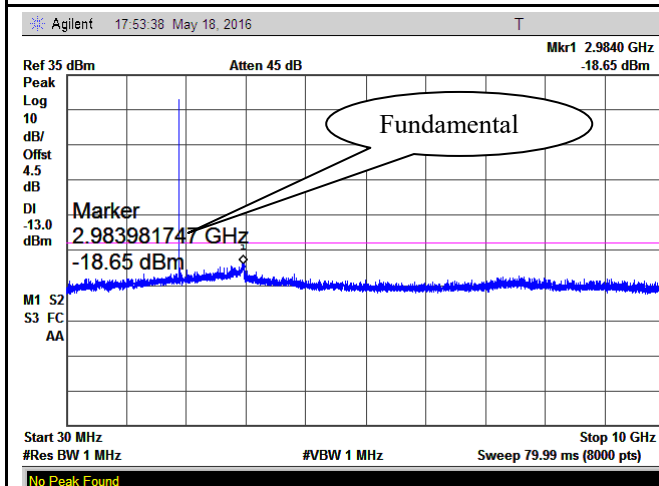
PCS 1900 - Low Channel-2



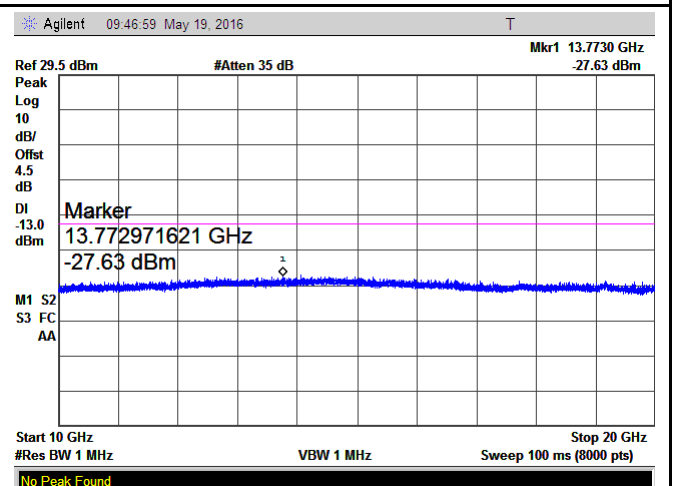
PCS1900 - Middle Channel-1



PCS 1900 - Middle Channel-2



PCS1900 - High Channel-1

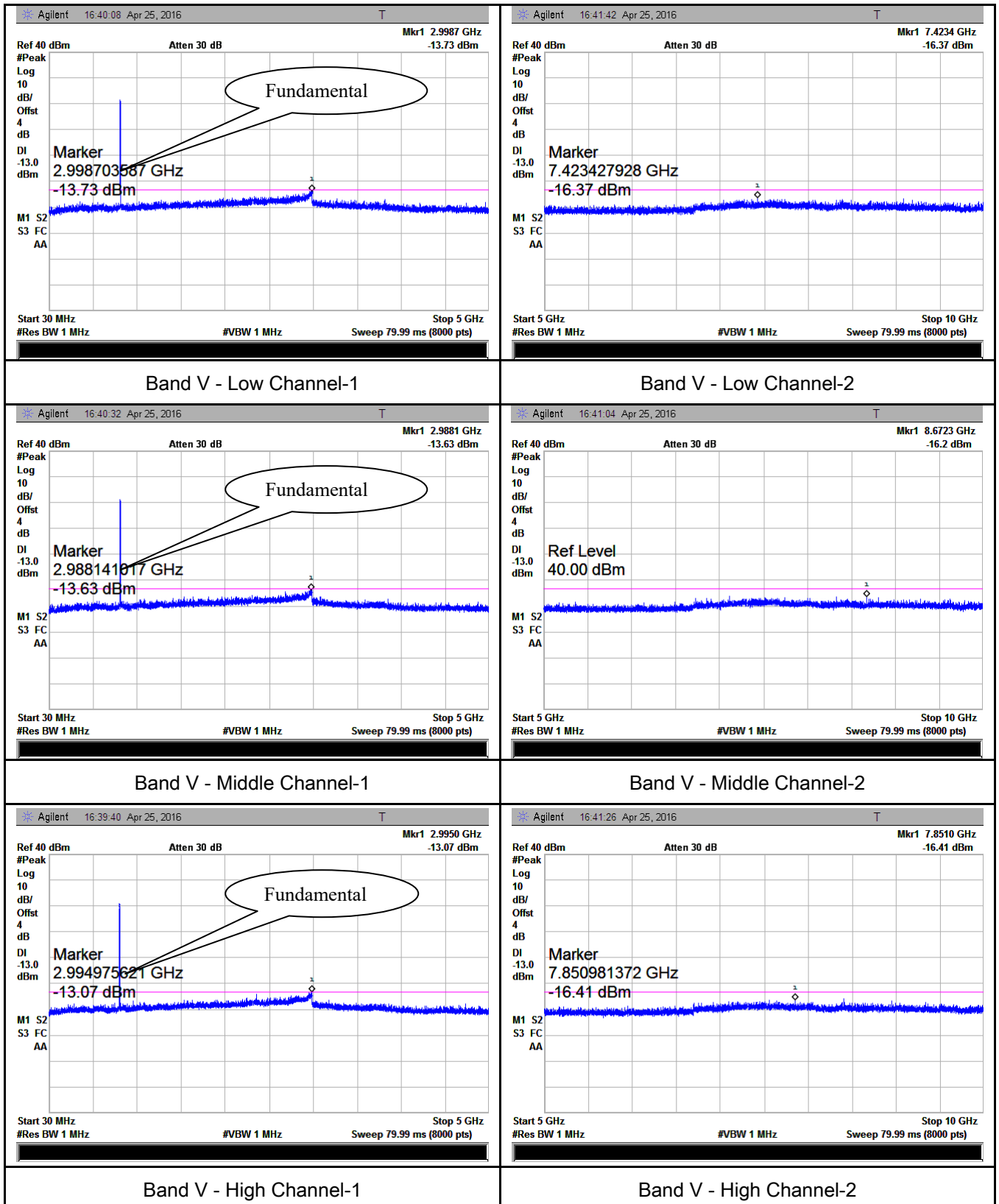


PCS 1900 - High Channel-2

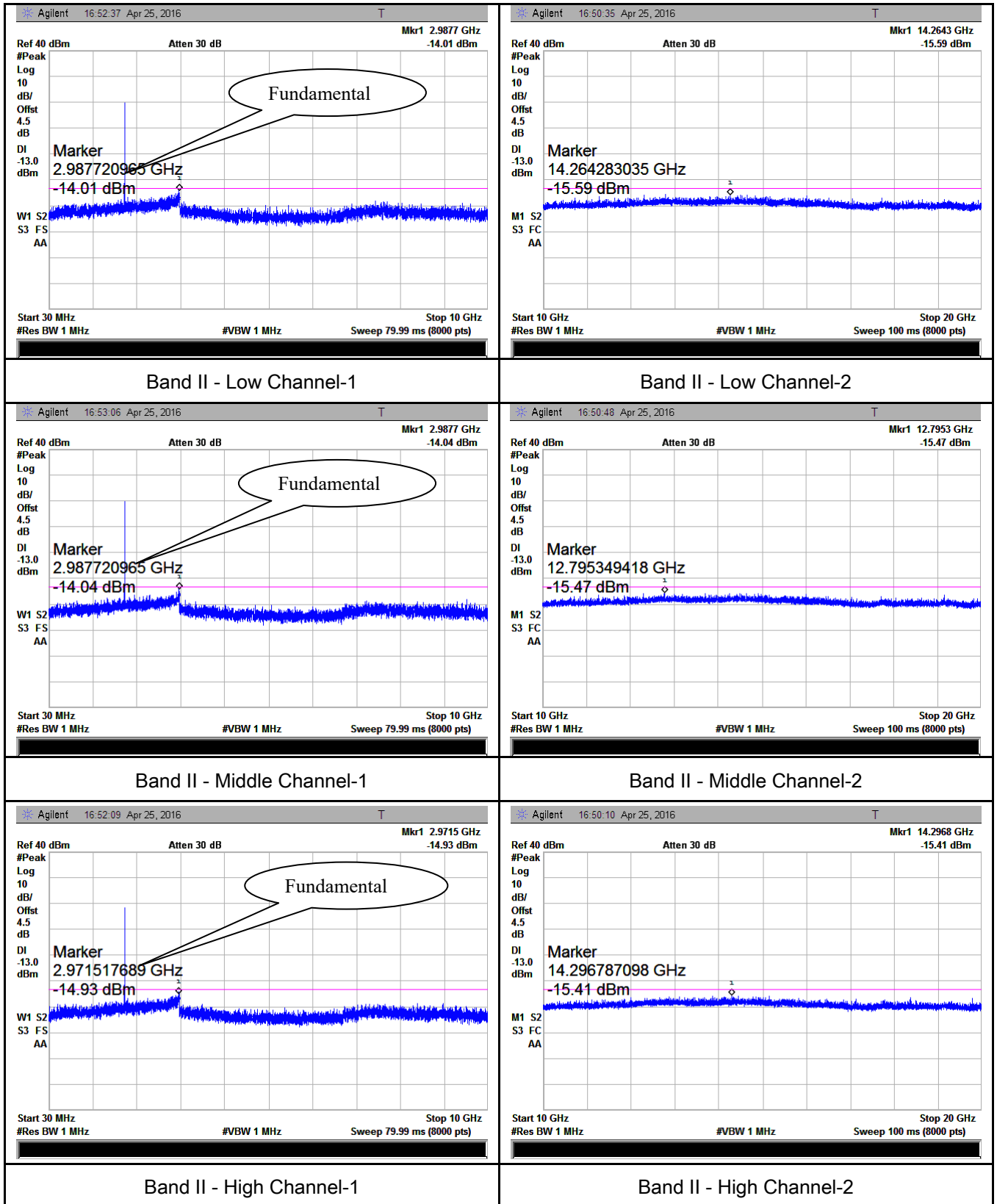
RMC:

Test Plots

UMTS-FDD Band V (Part 22H)



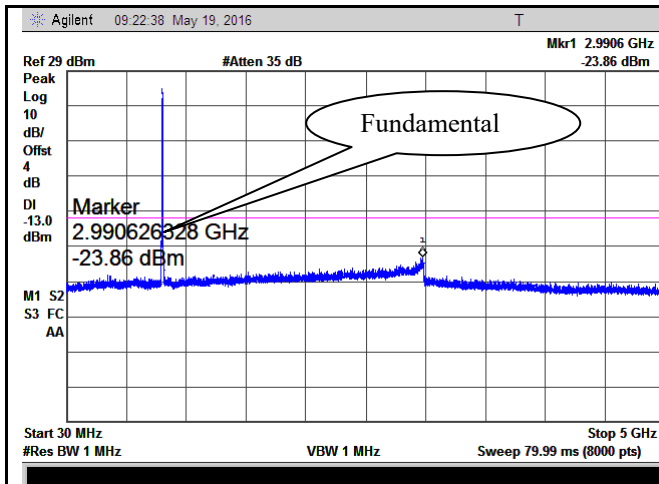
## UMTS-FDD Band II (Part 24E)



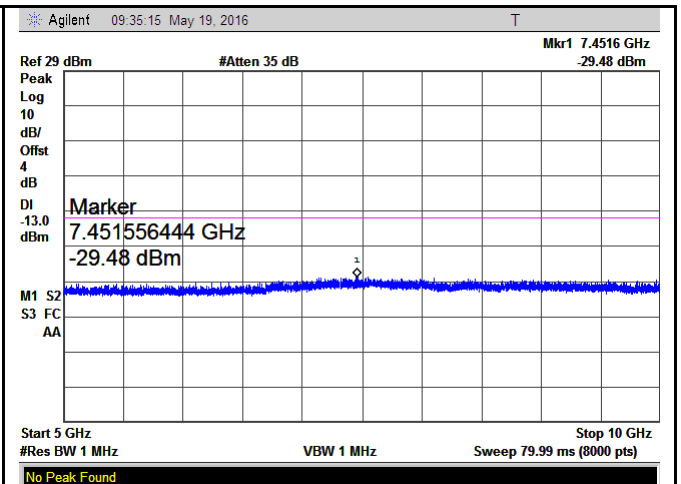
HSUPA:

Test Plots

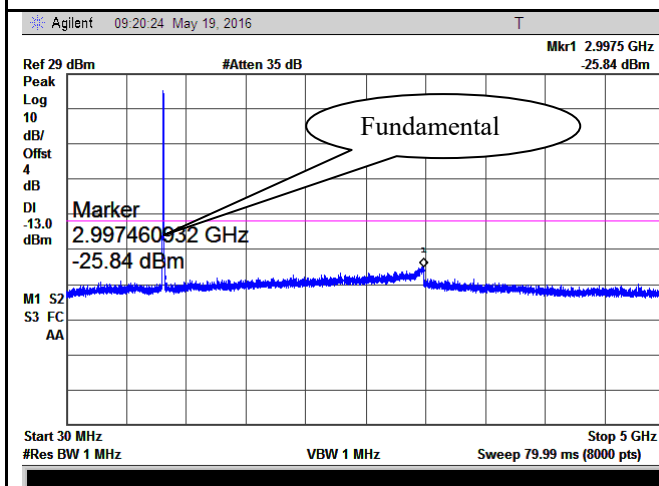
UMTS-FDD Band V (Part 22H)



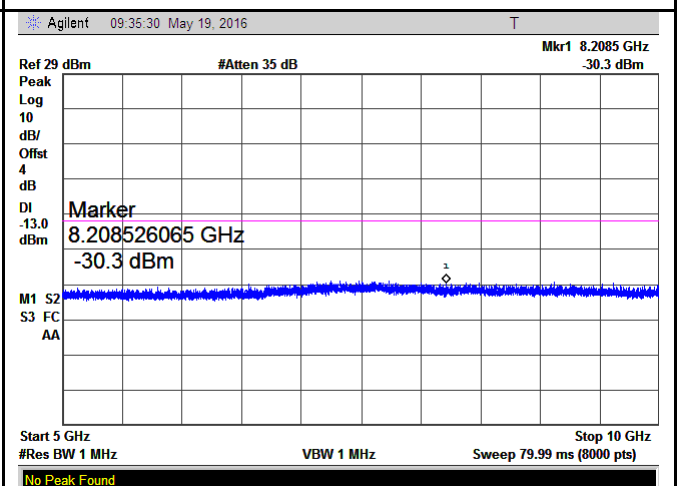
Band V - Low Channel-1



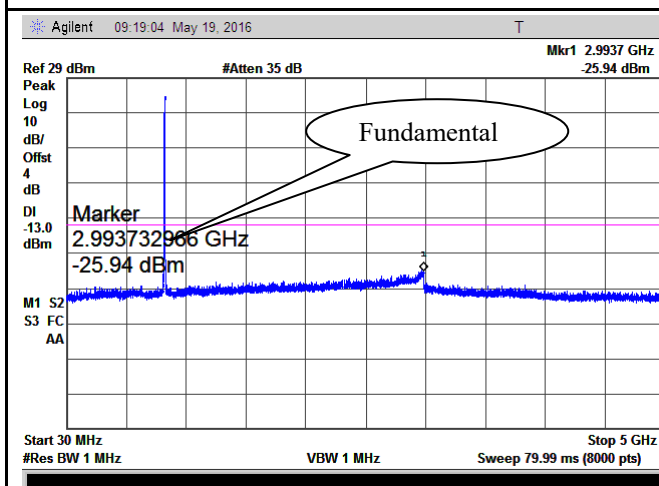
Band V - Low Channel-2



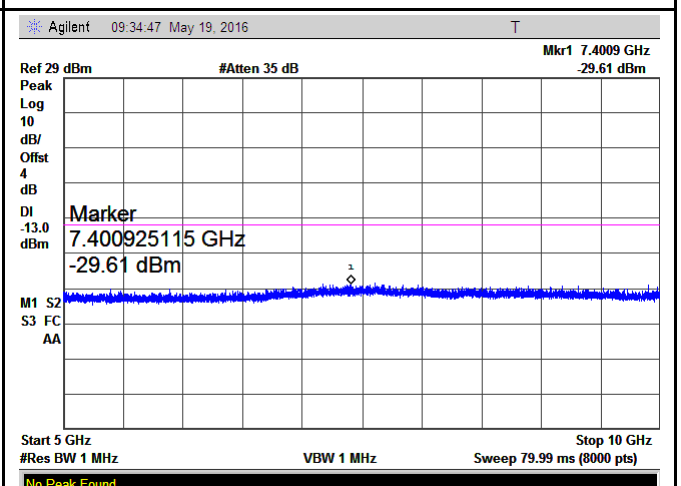
Band V - Middle Channel-1



Band V - Middle Channel-2

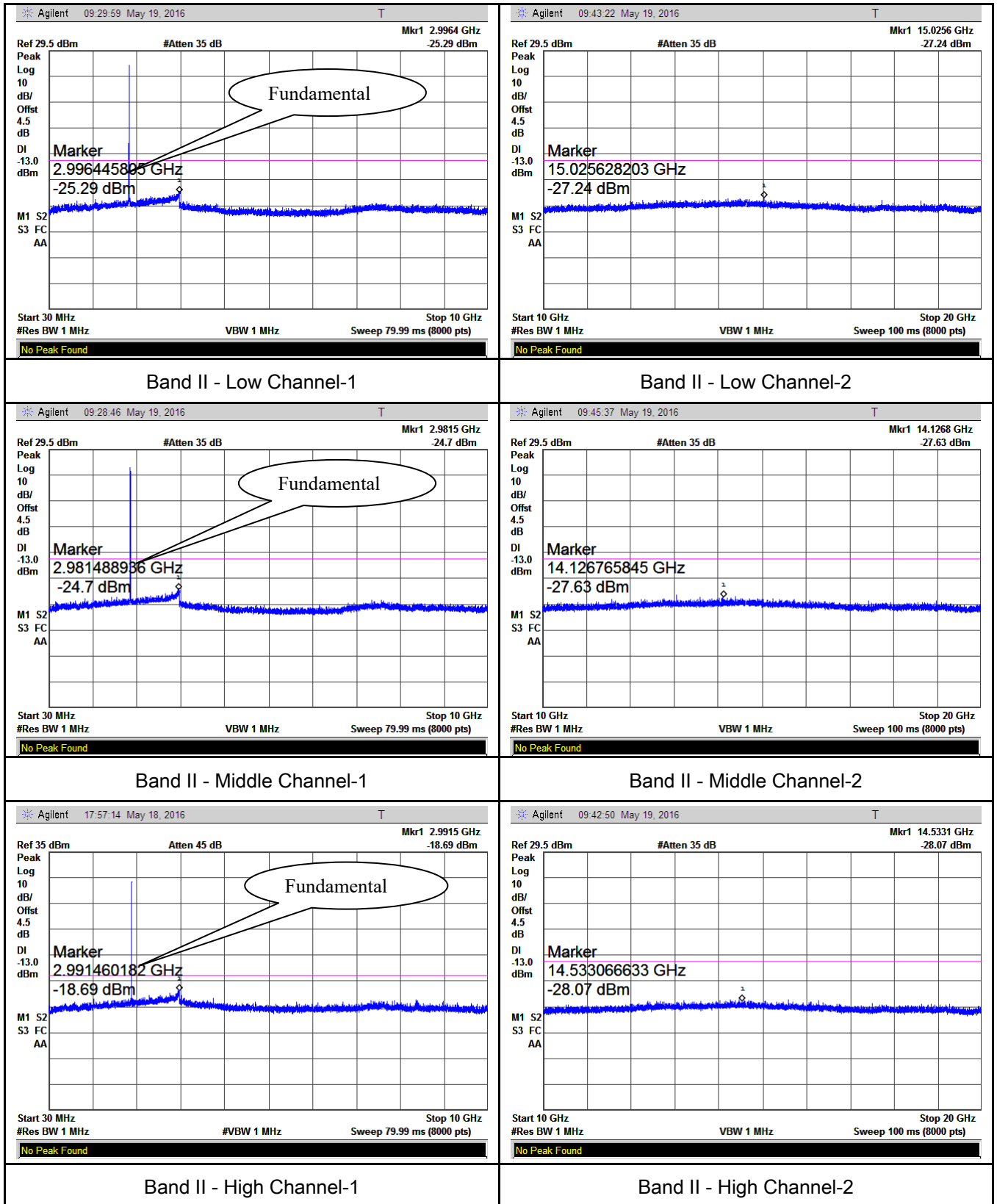


Band V - High Channel-1



Band V - High Channel-2

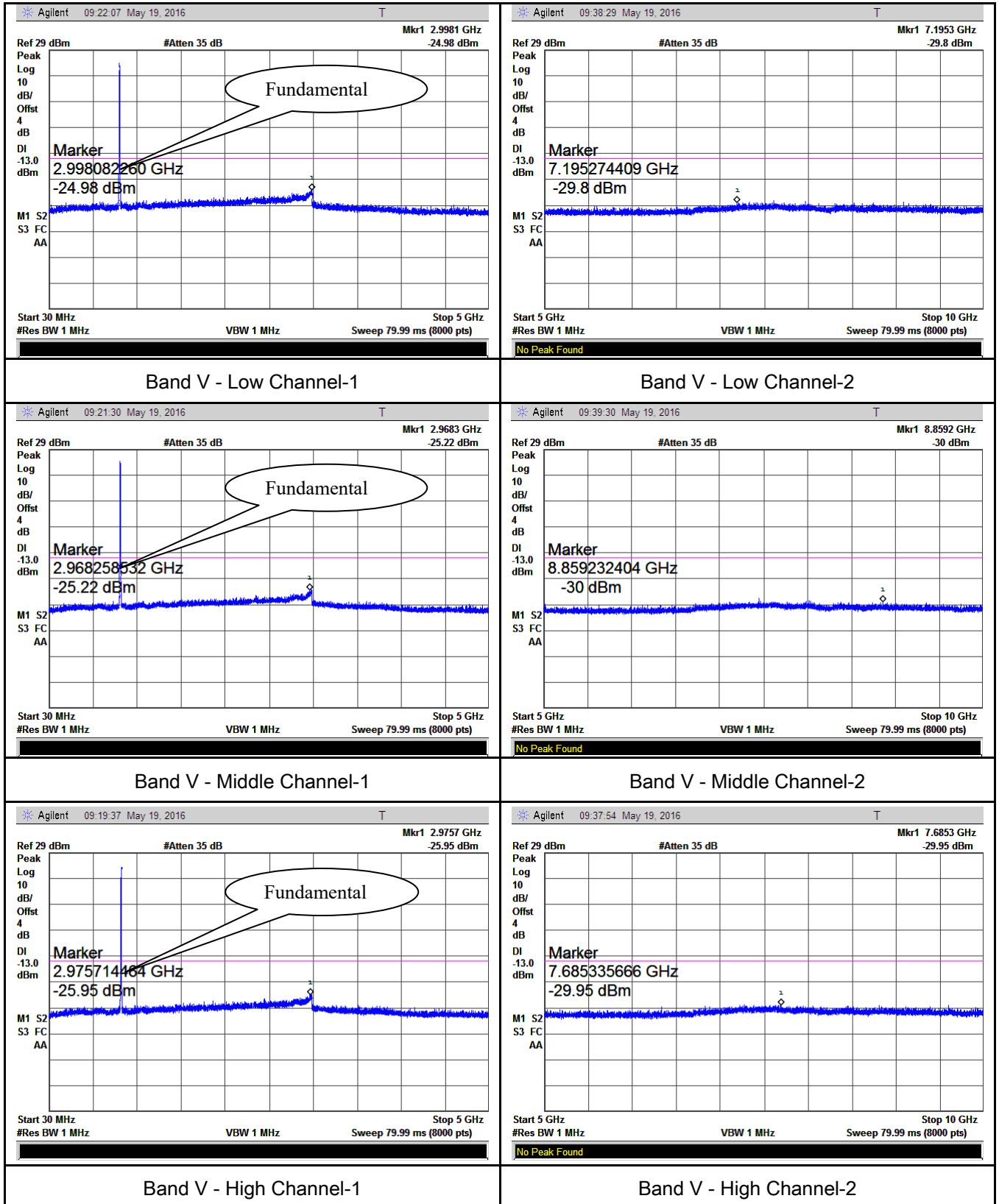
## UMTS-FDD Band II (Part 24E)



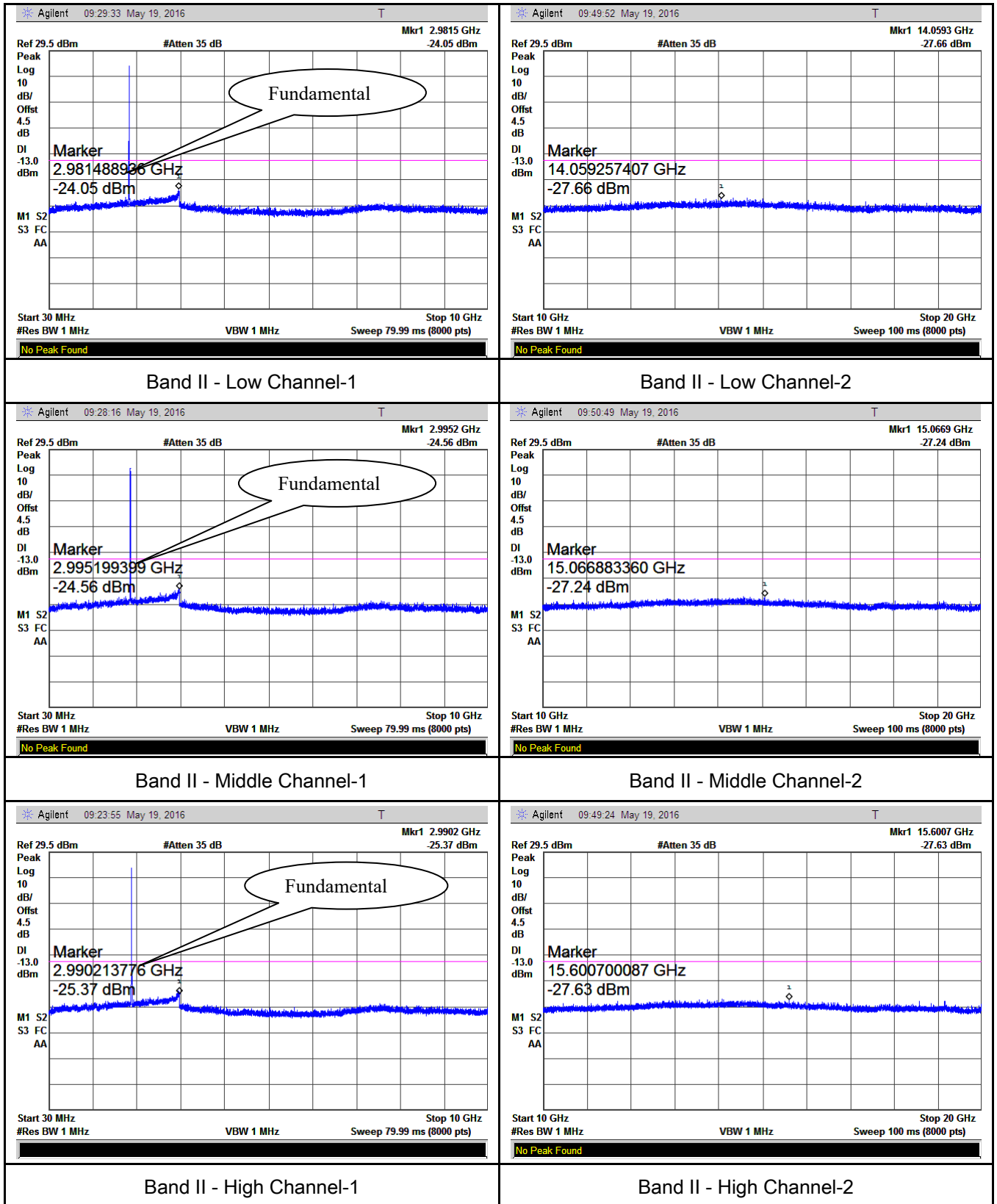
HSDPA:

Test Plots

UMTS-FDD Band V (Part 22H)



## UMTS-FDD Band II (Part 24E)

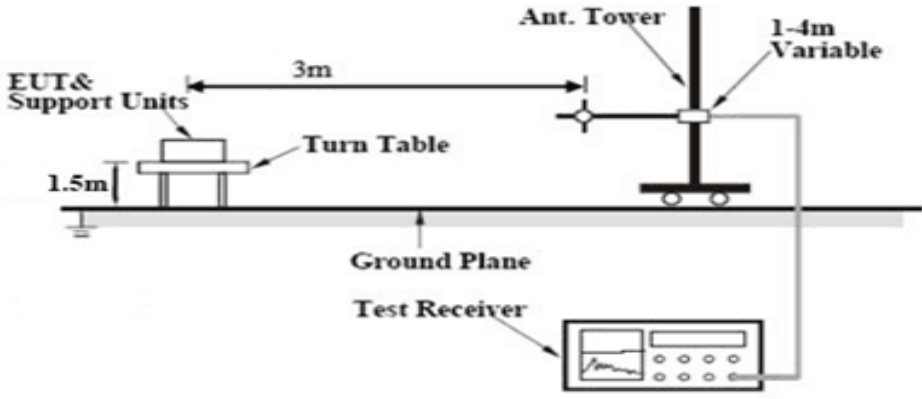


## 6.6 Spurious Radiated Emissions

Temperature	24°C
Relative Humidity	56%
Atmospheric Pressure	1004mbar
Test date :	May 04 May 19, 2016
Tested By :	Winnie Zhang

### Requirement(s):

Spec	Item	Requirement	Applicable
§2.1053, §22.917 & §24.238 § 27.53(h)	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	
------------	--

Test Procedure	<ol style="list-style-type: none"> <li>The transmitter was placed on a wooden turntable, and it was transmitting into a non-radiating load which was also placed on the turntable.</li> <li>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.</li> <li>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.</li> </ol> <p>Sample Calculation:</p> <p>EUT Field Strength = Raw Amplitude (dB<math>\mu</math>V/m) – Amplifier Gain (dB) + Antenna Factor (dB) + Cable Loss (dB) + Filter Attenuation (dB, if used)</p>
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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	-43.15	V	7.95	0.78	-35.98	-13	-22.98
1648.4	-42.72	H	7.95	0.78	-35.55	-13	-22.55
251.7	-52.08	V	6.8	0.24	-45.52	-13	-32.52
366.2	-51.46	H	6.7	0.28	-45.04	-13	-32.04

#### 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	-43.26	V	7.95	0.78	-36.09	-13	-23.09
1673.2	-42.63	H	7.95	0.78	-35.46	-13	-22.46
251.3	-52.18	V	6.8	0.24	-45.62	-13	-32.62
366.7	-51.74	H	6.7	0.28	-45.32	-13	-32.32

#### 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	-43.51	V	7.95	0.78	-36.34	-13	-23.34
1697.6	-42.38	H	7.95	0.78	-35.21	-13	-22.21
251.6	-52.24	V	6.8	0.24	-45.68	-13	-32.68
366.3	-51.91	H	6.7	0.28	-45.49	-13	-32.49

#### 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 investigating. The results above show only the worst case.

## 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	-47.35	V	10.25	2.73	-39.83	-13	-26.83
3700.4	-47.09	H	10.25	2.73	-39.57	-13	-26.57
250.7	-53.41	V	6.8	0.24	-46.85	-13	-33.85
365.5	-52.78	H	6.7	0.28	-46.36	-13	-33.36

### 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	-47.28	V	10.25	2.73	-39.76	-13	-26.76
3760	-47.13	H	10.25	2.73	-39.61	-13	-26.61
250.3	-53.36	V	6.8	0.24	-46.80	-13	-33.80
365.8	-52.45	H	6.7	0.28	-46.03	-13	-33.03

### 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	-47.43	V	10.36	2.73	-39.80	-13	-26.80
3819.6	-46.97	H	10.36	2.73	-39.34	-13	-26.34
250.4	-53.42	V	6.8	0.24	-46.86	-13	-33.86
365.9	-52.36	H	6.7	0.28	-45.94	-13	-32.94

#### 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 investigating. The results above show only the worst case.

## RMC

### 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	-45.61	V	7.95	0.78	-38.44	-13	-25.44
1652.8	-45.26	H	7.95	0.78	-38.09	-13	-25.09
251.4	-52.45	V	6.8	0.24	-45.89	-13	-32.89
366.7	-52.18	H	6.7	0.28	-45.76	-13	-32.76

#### 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	-45.38	V	7.95	0.78	-38.21	-13	-25.21
1670	-45.02	H	7.95	0.78	-37.85	-13	-24.85
251.8	-52.33	V	6.8	0.24	-45.77	-13	-32.77
366.1	-51.87	H	6.7	0.28	-45.45	-13	-32.45

#### 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	-45.24	V	7.95	0.78	-38.07	-13	-25.07
1693.2	-45.09	H	7.95	0.78	-37.92	-13	-24.92
251.5	-52.16	V	6.8	0.24	-45.6	-13	-32.60
366.3	-52.32	H	6.7	0.28	-45.9	-13	-32.90

#### 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.RMC , HSUPA and HSDPA mode were investigating. The results above show only the worsr case.

## 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	-49.37	V	10.25	2.73	-41.85	-13	-28.85
3704.8	-49.13	H	10.25	2.73	-41.61	-13	-28.61
250.3	-52.62	V	6.8	0.24	-46.06	-13	-33.06
365.7	-52.89	H	6.7	0.28	-46.47	-13	-33.47

### 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	-49.41	V	10.25	2.73	-41.89	-13	-28.89
3760	-49.28	H	10.25	2.73	-41.76	-13	-28.76
250.1	-52.46	V	6.8	0.24	-45.9	-13	-32.90
365.4	-52.73	H	6.7	0.28	-46.31	-13	-33.31

### 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	-49.35	V	10.36	2.73	-41.72	-13	-28.72
3815.2	-49.21	H	10.36	2.73	-41.58	-13	-28.58
250.8	-52.63	V	6.8	0.24	-46.07	-13	-33.07
365.5	-52.58	H	6.7	0.28	-46.16	-13	-33.16

#### Note:

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

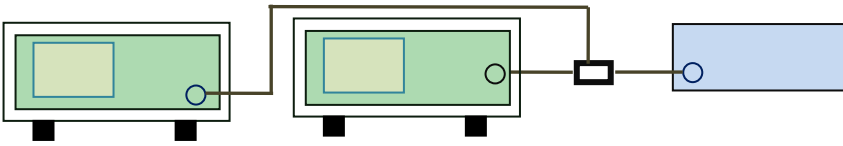
2, All other emissions more than 30 dB below the limit

3. RMC , HSUPA and HSDPA mode were investigated. The results above show only the worst case.

## 6.7 Band Edge

Temperature	22°C
Relative Humidity	58%
Atmospheric Pressure	1025mbar
Test date :	April 25 & May 18, 2016
Tested By :	Winnie Zhang

### Requirement(s):

Spec	Item	Requirement	Applicable
§22.917(a) §24.238(a) § 27.53(h)	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"> <li>- The EUT was connected to Spectrum Analyzer and Base Station via power divider.</li> <li>- The Band Edges of low and high channels for the highest RF powers were measured. Setting RBW as roughly BW/100.</li> </ul>		
Remark			
Result	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail		

Test Data    ☒ Yes      ☐ N/A

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

## GSM :

### Cellular Band (Part 22H) result

Frequency (MHz)	Emission (dBm)	Limit (dBm)
823.9950	-14.07	-13
849.0175	-13.18	-13

### PCS Band (Part24E) result

Frequency (MHz)	Emission (dBm)	Limit (dBm)
1849.9950	-18.08	-13
1910.0025	-18.54	-13

## GPRS:

### Cellular Band (Part 22H) result

Frequency (MHz)	Emission (dBm)	Limit (dBm)
823.9800	-15.86	-13
849.0175	-16.98	-13

### PCS Band (Part24E) result

Frequency (MHz)	Emission (dBm)	Limit (dBm)
1849.9950	-17.49	-13
1710.0175	-17.88	-13

## EGPRS:

### Cellular Band (Part 22H) result

Frequency (MHz)	Emission (dBm)	Limit (dBm)
823.9900	-15.47	-13
849.0250	-15.25	-13

### PCS Band (Part24E) result

Frequency (MHz)	Emission (dBm)	Limit (dBm)
1849.9900	-15.93	-13
1910.0200	-16.22	-13

## RMC :

### UMTS-FDD Band V (Part 22H)

Frequency (MHz)	Emission (dBm)	Limit (dBm)
823.900	-24.99	-13
849.075	-28.55	-13

### UMTS-FDD Band II (Part 24E)

Frequency (MHz)	Emission (dBm)	Limit (dBm)
1849.900	-27.52	-13
1910.075	-29.89	-13



## HSUPA :

### UMTS-FDD Band V (Part 22H)

Frequency (MHz)	Emission (dBm)	Limit (dBm)
823.825	-21.70	-13
849.200	-23.66	-13

### UMTS-FDD Band II (Part 24E)

Frequency (MHz)	Emission (dBm)	Limit (dBm)
1849.775	-16.72	-13
1910.075	-17.36	-13

## HSDPA :

### UMTS-FDD Band V (Part 22H)

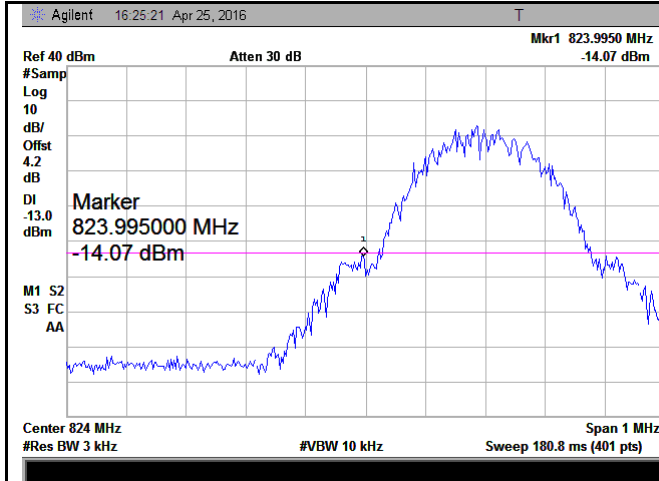
Frequency (MHz)	Emission (dBm)	Limit (dBm)
822.950	-22.81	-13
849.550	-24.35	-13

### UMTS-FDD Band II (Part 24E)

Frequency (MHz)	Emission (dBm)	Limit (dBm)
1849.900	-18.68	-13
1910.100	-16.54	-13

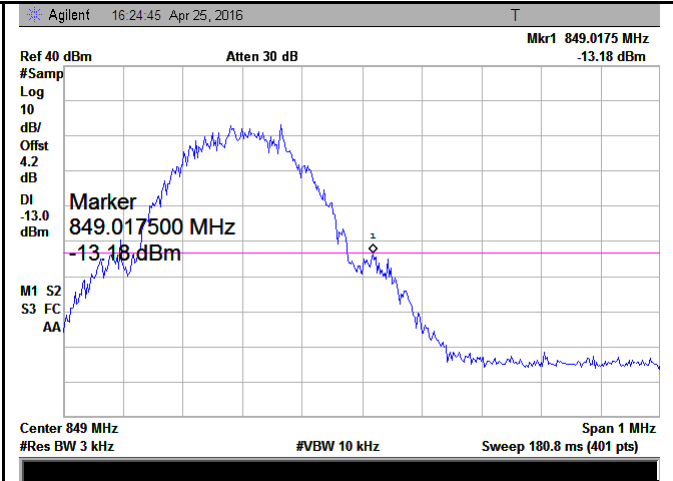
## GSM :

### Test Plots



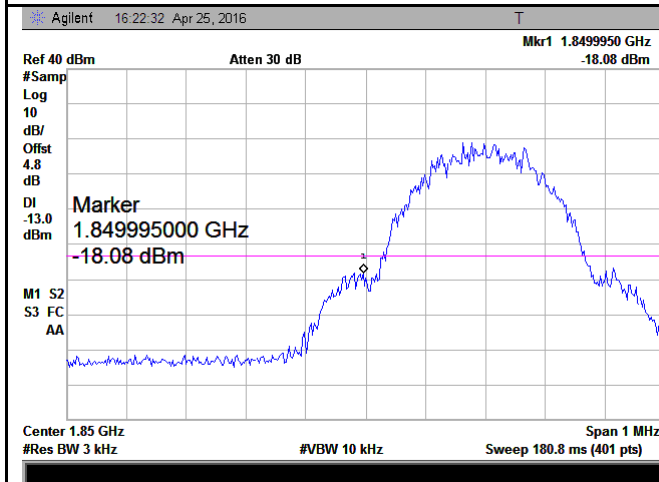
Cellular Band - Low Channel

Note: Offset=Cable loss (4.0) + 10log  
(3.16/3)=4.0+0.2=4.2dB



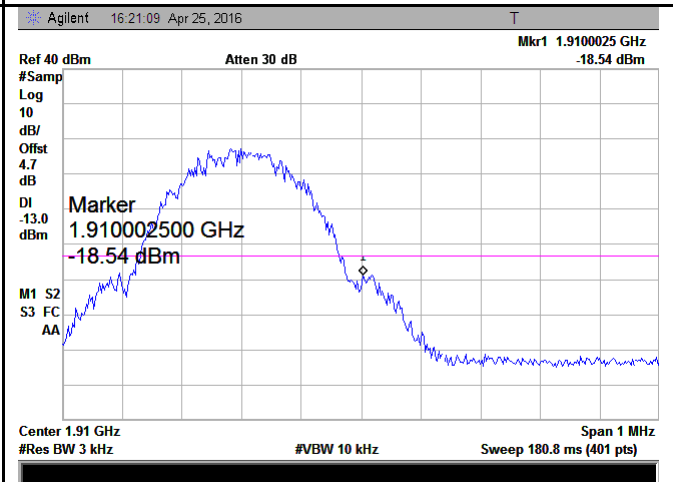
Cellular Band - High Channel

Note: Offset=Cable loss (4.0) + 10log  
(3.13/3)=4.0+0.2=4.2dB



PCS Band - Low Channel

Note: Offset=Cable loss (4.5) + 10log  
(3.20/3)=4.5+0.3=4.8dB

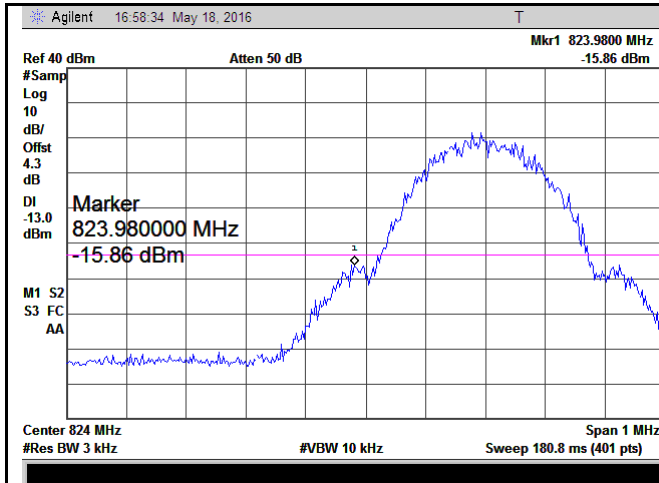


PCS Band - High Channel

Note: Offset=Cable loss (4.5) + 10log  
(3.18/3)=4.5+0.2=4.7dB

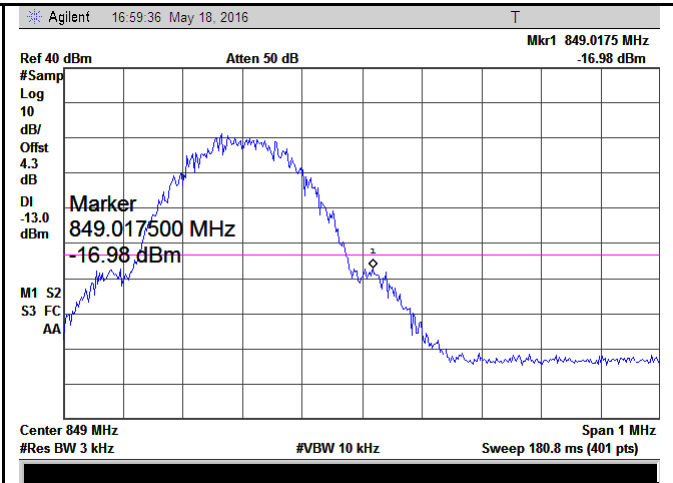
## GPRS:

### Test Plots



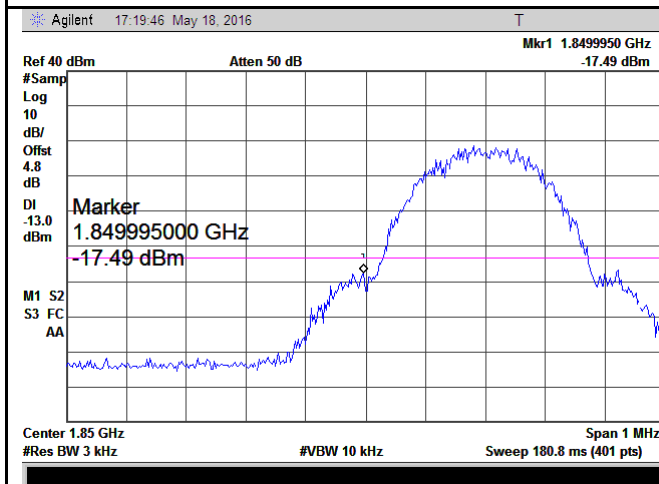
Cellular Band - Low Channel

Note: Offset=Cable loss (4.0) + 10log  
(3.21/3)=4.0+0.3=4.3dB



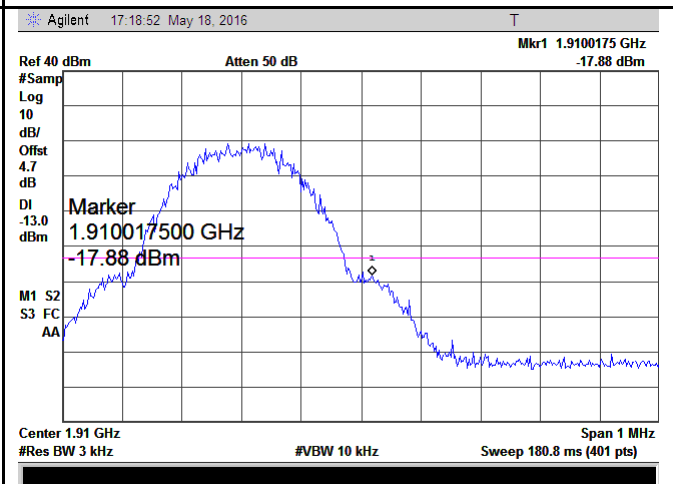
Cellular Band - High Channel

Note: Offset=Cable loss (4.0) + 10log  
(3.20/3)=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

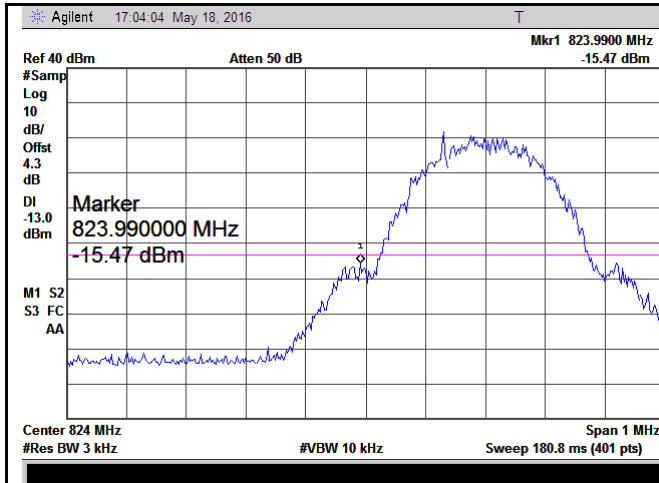


PCS Band - High Channel

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

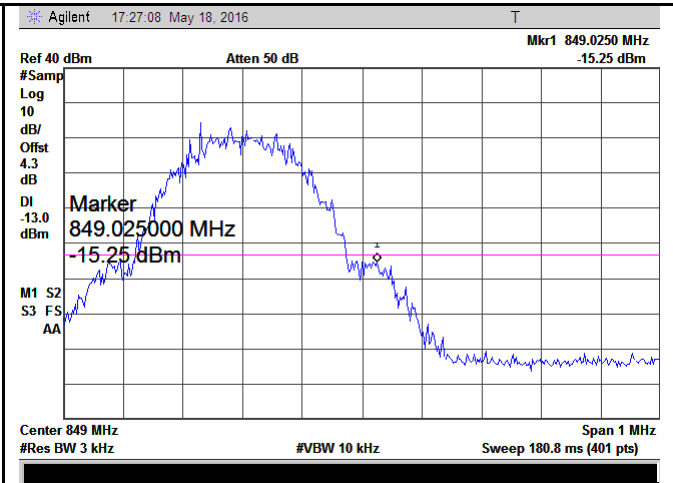
## EGPRS:

### Test Plots



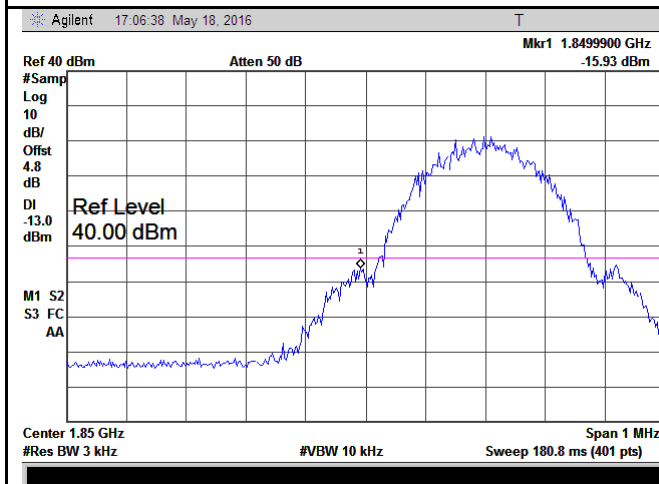
Cellular Band - Low Channel

Note: Offset=Cable loss (4.0) + 10log  
(3.20/3)=4.0+0.3=4.3dB



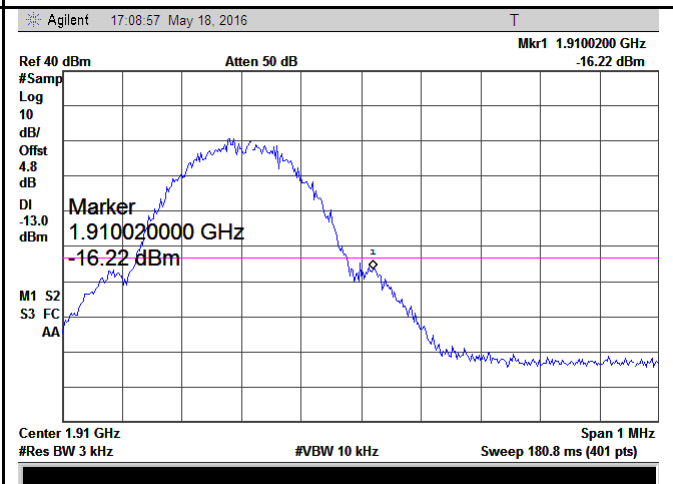
Cellular Band - High Channel

Note: Offset=Cable loss (4.0) + 10log  
(3.22/3)=4.0+0.3=4.3dB



PCS Band - Low Channel

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

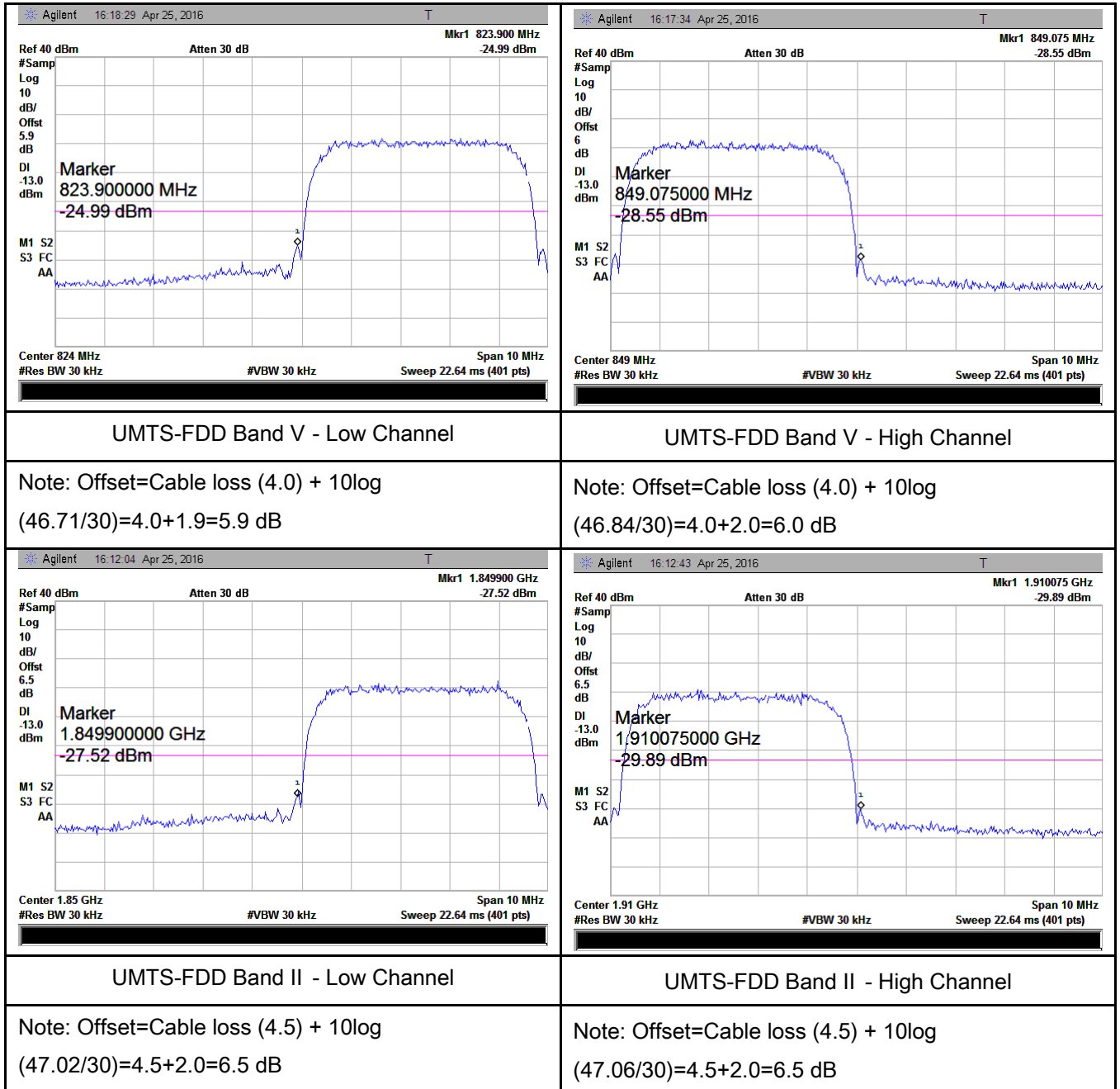


PCS Band - High Channel

Note: Offset=Cable loss (4.5) + 10log  
(3.23/3)=4.5+0.3=4.8dB

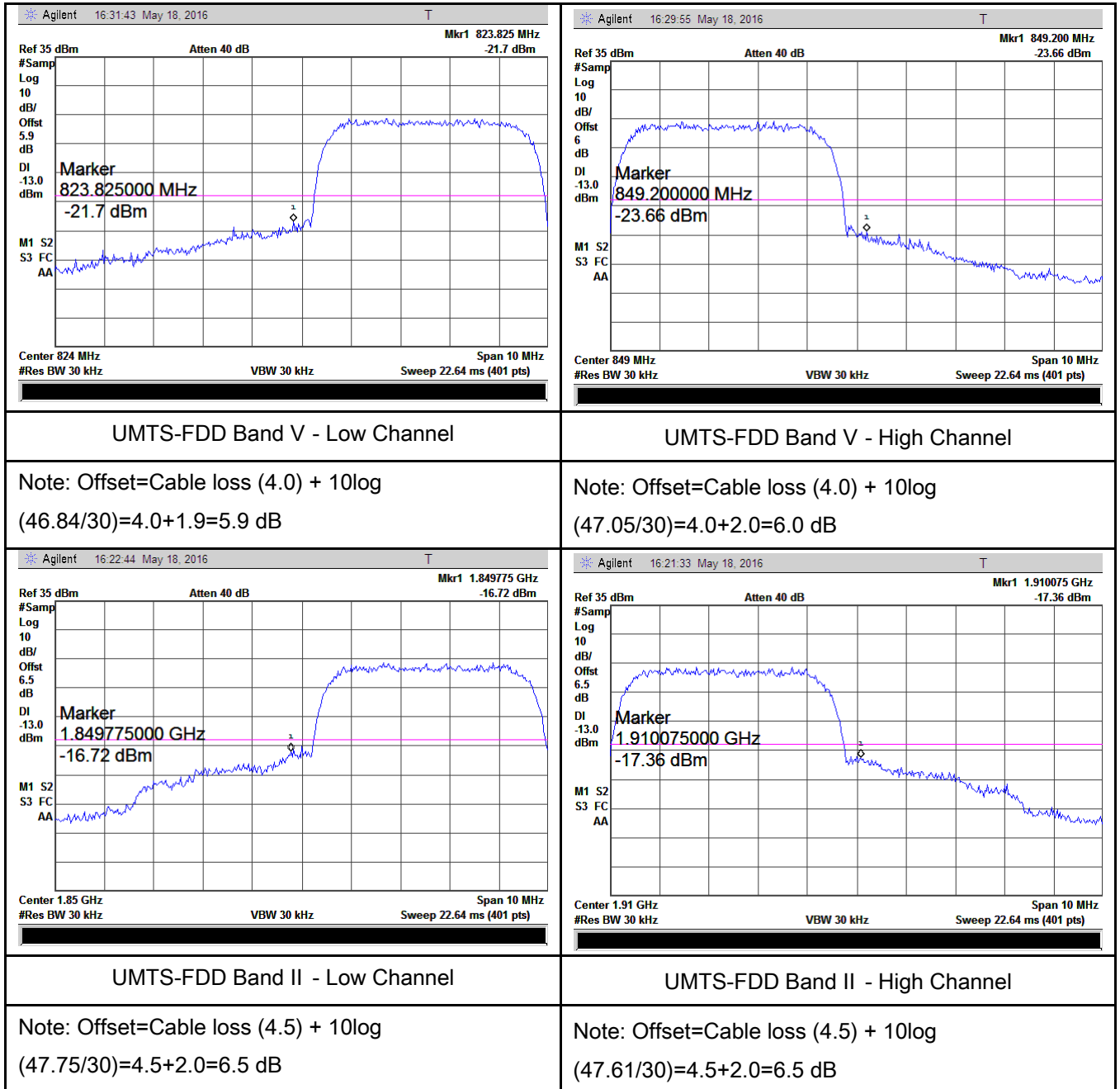
RMC:

## Test Plots



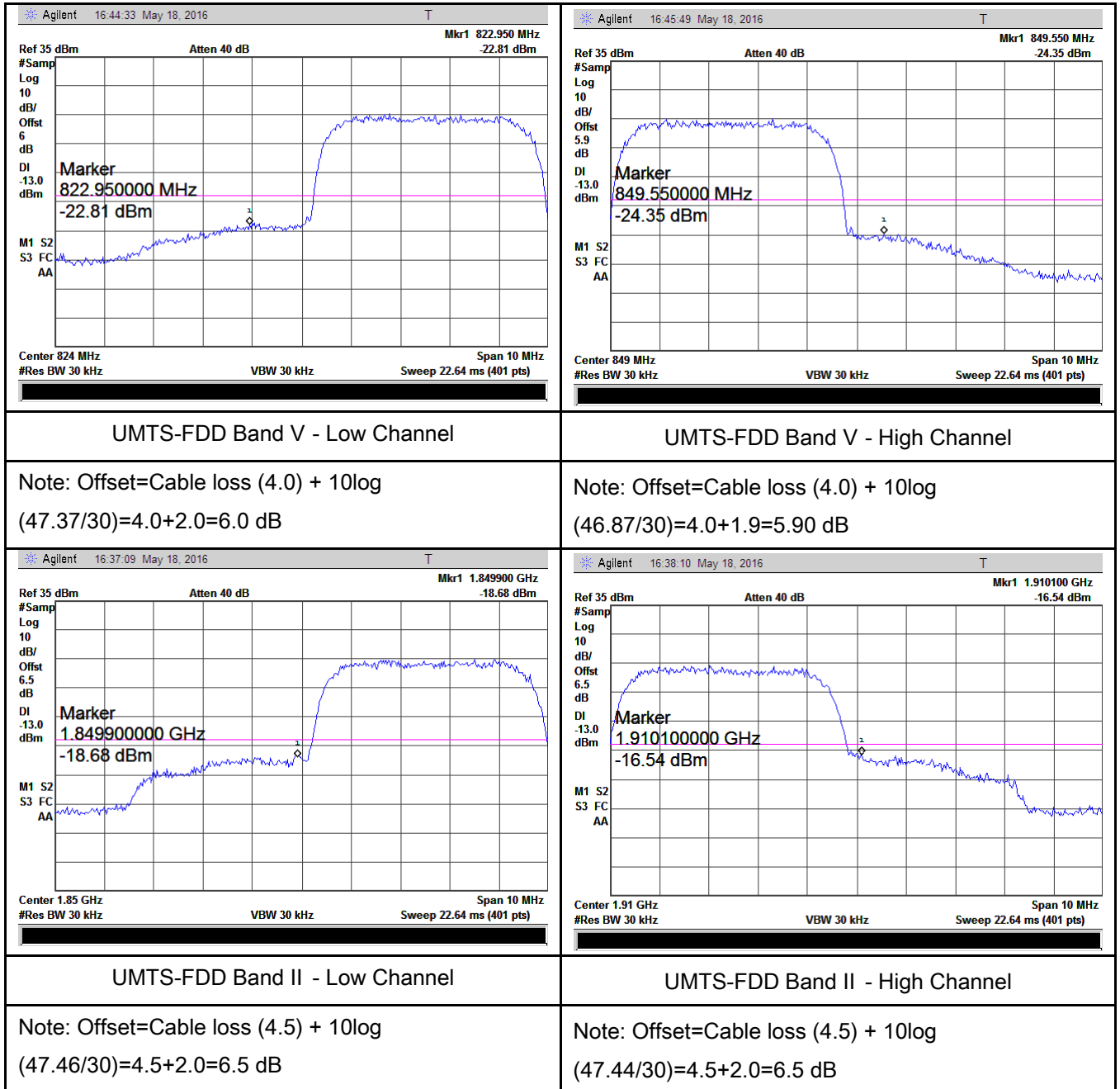
## HSUPA:

### Test Plots



## HSDPA:

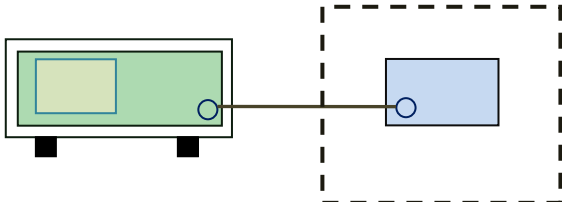
### Test Plots



## 6.8 Frequency Stability

Temperature	24°C
Relative Humidity	56%
Atmospheric Pressure	1004mbar
Test date :	May 04 May 19, 2016
Tested By :	Winnie Zhang

### Requirement(s):

Spec	Item	Requirement	Applicable																																
§2.1055, §22.355 & §24.235 § 27.5(h); § 27.54	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	<input checked="" type="checkbox"/>
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																																			



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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 :

### Cellular Band (Part 22H) result

Middle Channel, $f_0 = 836.6$ MHz				
Temperature (°C)	Power Supplied (V <sub>DC</sub> )	Frequency Error (Hz)	Frequency Error (ppm)	Limit (ppm)
-10	3.7	18	0.0215	2.5
0		15	0.0179	2.5
10		11	0.0131	2.5
20		9	0.0108	2.5
30		13	0.0155	2.5
40		15	0.0179	2.5
50		16	0.0191	2.5
55		17	0.0203	2.5
25	4.2	12	0.0143	2.5
	3.5	14	0.0167	2.5

### PCS Band (Part 24E) result

Middle Channel, $f_0 = 1880$ MHz				
Temperature (°C)	Power Supplied (V <sub>DC</sub> )	Frequency Error (Hz)	Frequency Error (ppm)	Limit (ppm)
-10	3.7	21	0.0112	2.5
0		17	0.0090	2.5
10		11	0.0059	2.5
20		7	0.0037	2.5
30		10	0.0053	2.5
40		15	0.0080	2.5
50		17	0.0090	2.5
55		21	0.0112	2.5
25	4.2	15	0.0080	2.5
	3.5	17	0.0090	2.5

GPRS :

**Cellular Band (Part 22H) result**

Middle Channel, $f_0 = 836.6$ MHz				
Temperature (°C)	Power Supplied (V <sub>DC</sub> )	Frequency Error (Hz)	Frequency Error (ppm)	Limit (ppm)
-10	3.7	17	0.0203	2.5
0		13	0.0155	2.5
10		12	0.0143	2.5
20		10	0.0120	2.5
30		12	0.0143	2.5
40		14	0.0167	2.5
50		15	0.0179	2.5
55		16	0.0191	2.5
25	4.2	13	0.0155	2.5
	3.5	12	0.0143	2.5

**PCS Band (Part 24E) result**

Middle Channel, $f_0 = 1880$ MHz				
Temperature (°C)	Power Supplied (V <sub>DC</sub> )	Frequency Error (Hz)	Frequency Error (ppm)	Limit (ppm)
-10	3.7	22	0.0117	2.5
0		18	0.0096	2.5
10		12	0.0064	2.5
20		9	0.0048	2.5
30		9	0.0048	2.5
40		14	0.0074	2.5
50		16	0.0085	2.5
55		20	0.0106	2.5
25	4.2	16	0.0085	2.5
	3.5	16	0.0085	2.5

EGPRS :

### Cellular Band (Part 22H) result

Middle Channel, $f_0 = 836.6$ MHz				
Temperature (°C)	Power Supplied (V <sub>DC</sub> )	Frequency Error (Hz)	Frequency Error (ppm)	Limit (ppm)
-10	3.7	16	0.0191	2.5
0		14	0.0167	2.5
10		13	0.0155	2.5
20		11	0.0131	2.5
30		11	0.0131	2.5
40		15	0.0179	2.5
50		14	0.0167	2.5
55		13	0.0155	2.5
25	4.2	11	0.0131	2.5
	3.5	12	0.0143	2.5

### PCS Band (Part 24E) result

Middle Channel, $f_0 = 1880$ MHz				
Temperature (°C)	Power Supplied (V <sub>DC</sub> )	Frequency Error (Hz)	Frequency Error (ppm)	Limit (ppm)
-10	3.7	21	0.0112	2.5
0		19	0.0101	2.5
10		11	0.0059	2.5
20		10	0.0053	2.5
30		11	0.0059	2.5
40		13	0.0069	2.5
50		15	0.0080	2.5
55		21	0.0112	2.5
25	4.2	17	0.0090	2.5
	3.5	16	0.0085	2.5

RMC :

**UMTS-FDD Band V (Part 22H)**

Middle Channel, $f_0 = 835$ MHz				
Temperature (°C)	Power Supplied (V <sub>DC</sub> )	Frequency Error (Hz)	Frequency Error (ppm)	Limit (ppm)
-10	3.7	19	0.0228	2.5
0		15	0.0180	2.5
10		11	0.0132	2.5
20		9	0.0108	2.5
30		12	0.0144	2.5
40		13	0.0156	2.5
50		17	0.0204	2.5
55		19	0.0228	2.5
25	4.2	13	0.0156	2.5
	3.5	14	0.0168	2.5

**UMTS-FDD Band II (Part 24E)**

Middle Channel, $f_0 = 1880$ MHz				
Temperature (°C)	Power Supplied (V <sub>DC</sub> )	Frequency Error (Hz)	Frequency Error (ppm)	Limit (ppm)
-10	3.7	15	0.0080	2.5
0		13	0.0069	2.5
10		9	0.0048	2.5
20		6	0.0032	2.5
30		9	0.0048	2.5
40		11	0.0059	2.5
50		13	0.0069	2.5
55		14	0.0074	2.5
25	4.2	12	0.0064	2.5
	3.5	10	0.0053	2.5

HSUPA :

**UMTS-FDD Band V (Part 22H)**

Middle Channel, $f_0 = 835$ MHz				
Temperature (°C)	Power Supplied (V <sub>DC</sub> )	Frequency Error (Hz)	Frequency Error (ppm)	Limit (ppm)
-10	3.7	18	0.0216	2.5
0		14	0.0168	2.5
10		12	0.0144	2.5
20		9	0.0108	2.5
30		10	0.0120	2.5
40		12	0.0144	2.5
50		14	0.0168	2.5
55		15	0.0180	2.5
25	4.2	12	0.0144	2.5
	3.5	13	0.0156	2.5

**UMTS-FDD Band II (Part 24E)**

Middle Channel, $f_0 = 1880$ MHz				
Temperature (°C)	Power Supplied (V <sub>DC</sub> )	Frequency Error (Hz)	Frequency Error (ppm)	Limit (ppm)
-10	3.7	14	0.0074	2.5
0		11	0.0059	2.5
10		10	0.0053	2.5
20		7	0.0037	2.5
30		8	0.0043	2.5
40		10	0.0053	2.5
50		12	0.0064	2.5
55		13	0.0069	2.5
25	4.2	11	0.0059	2.5
	3.5	10	0.0053	2.5

HSDPA :

**UMTS-FDD Band V (Part 22H)**

Middle Channel, $f_0 = 835$ MHz				
Temperature (°C)	Power Supplied (V <sub>DC</sub> )	Frequency Error (Hz)	Frequency Error (ppm)	Limit (ppm)
-10	3.7	17	0.0204	2.5
0		16	0.0192	2.5
10		11	0.0132	2.5
20		11	0.0132	2.5
30		10	0.0120	2.5
40		11	0.0132	2.5
50		12	0.0144	2.5
55		14	0.0168	2.5
25	4.2	13	0.0156	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 <sub>DC</sub> )	Frequency Error (Hz)	Frequency Error (ppm)	Limit (ppm)
-10	3.7	15	0.0080	2.5
0		12	0.0064	2.5
10		11	0.0059	2.5
20		9	0.0048	2.5
30		7	0.0037	2.5
40		12	0.0064	2.5
50		11	0.0059	2.5
55		12	0.0064	2.5
25	4.2	10	0.0053	2.5
	3.5	12	0.0064	2.5

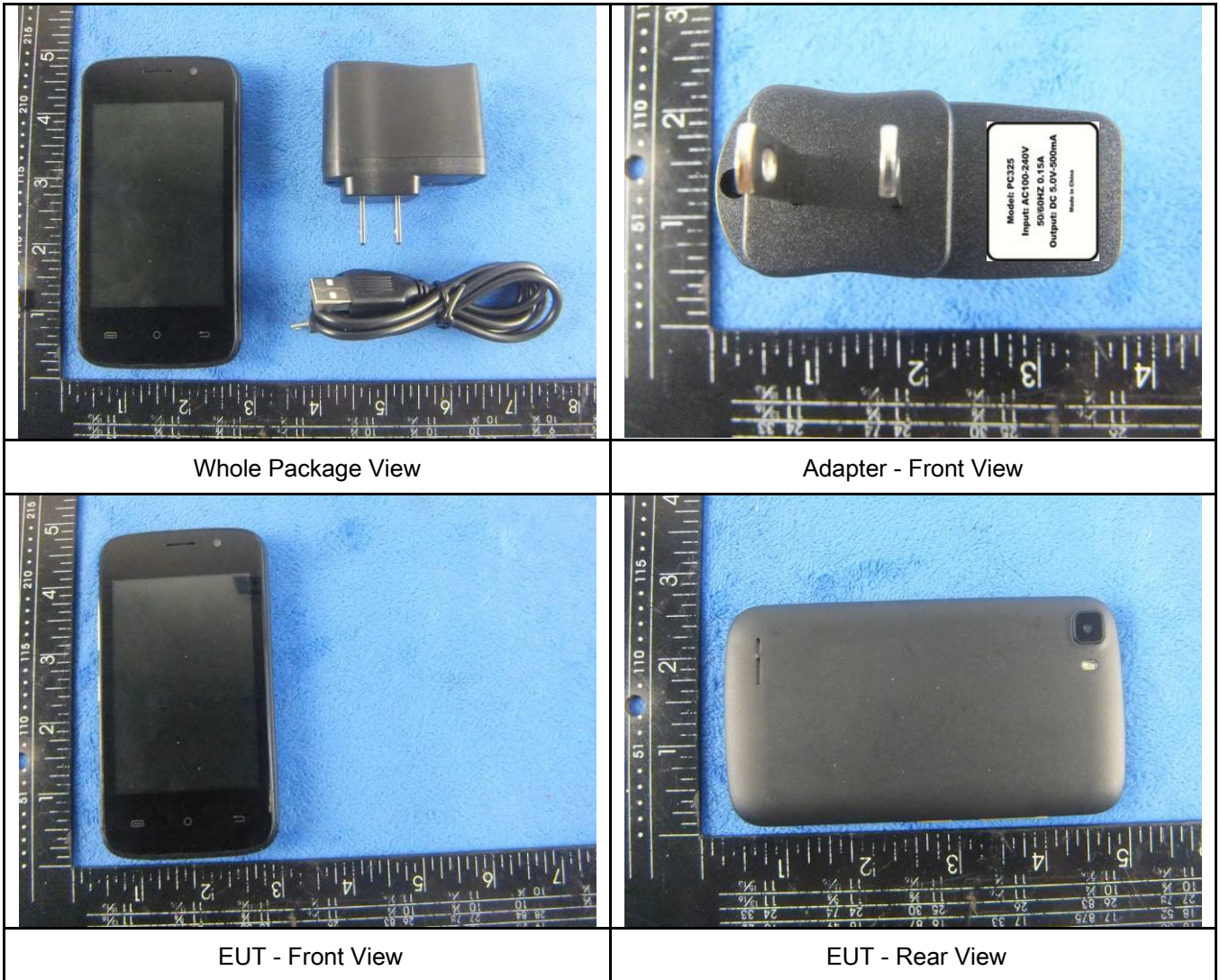
## Annex A. TEST INSTRUMENT

Instrument	Model	Serial #	Cal Date	Cal Due	In use
<b>RF Conducted Test</b>					
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"/>
<b>Radiated Emissions</b>					
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



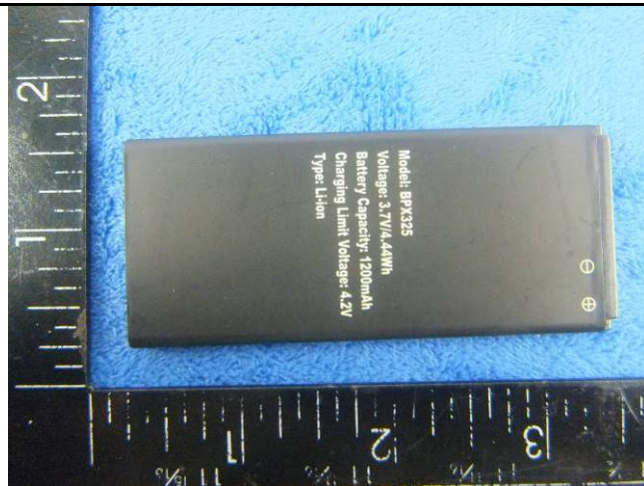
**Annex B.ii. Photograph: EUT Internal Photo**



Cover Off - Top View 1



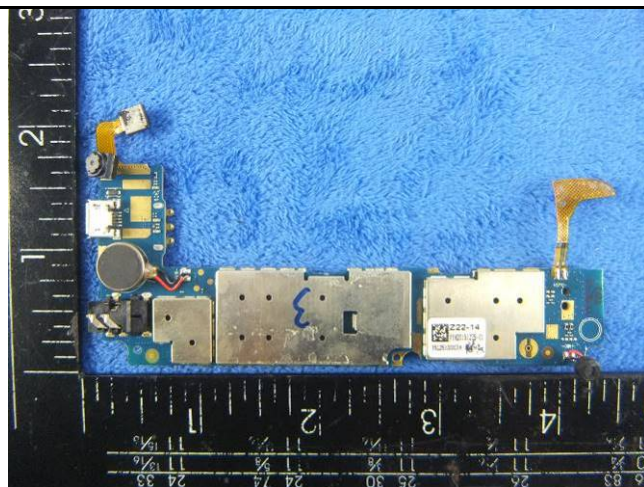
Cover Off - Top View 2



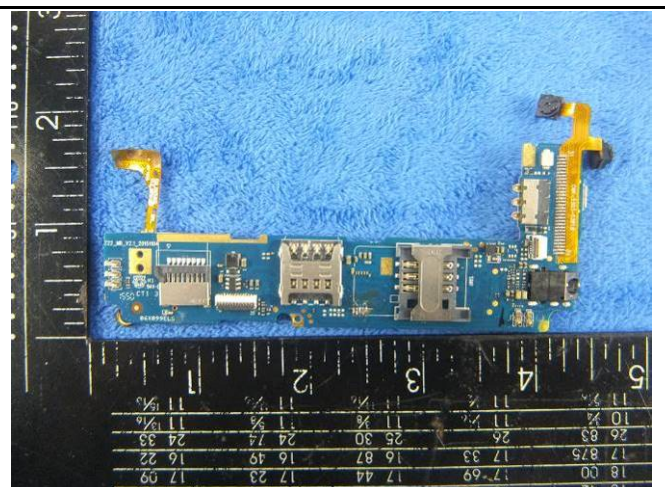
Battery - Front View



Battery - Rear View

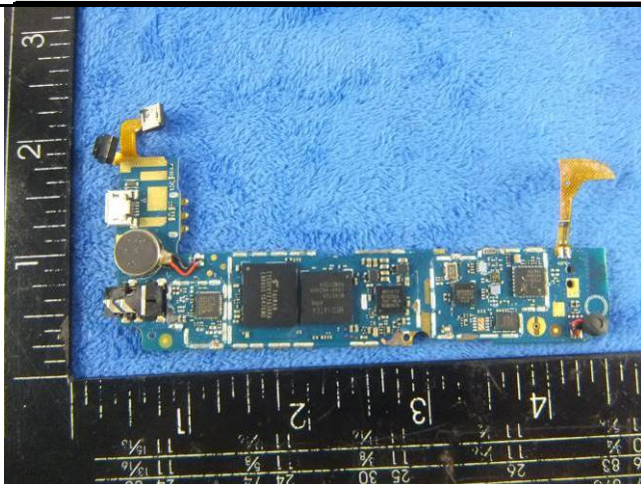


Mainboard with Shielding - Front View



Mainboard with Shielding - Rear View

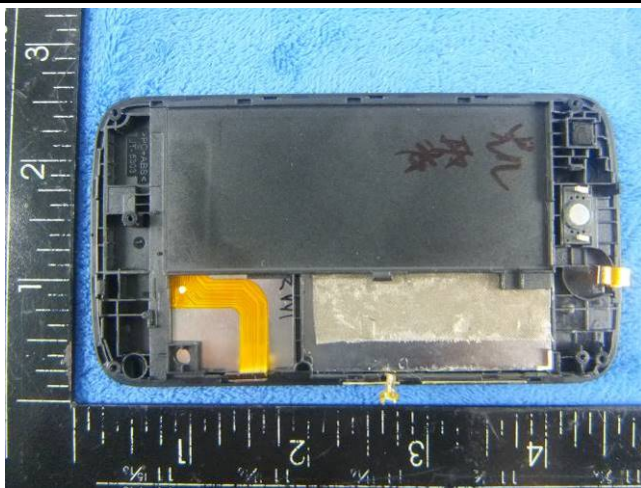




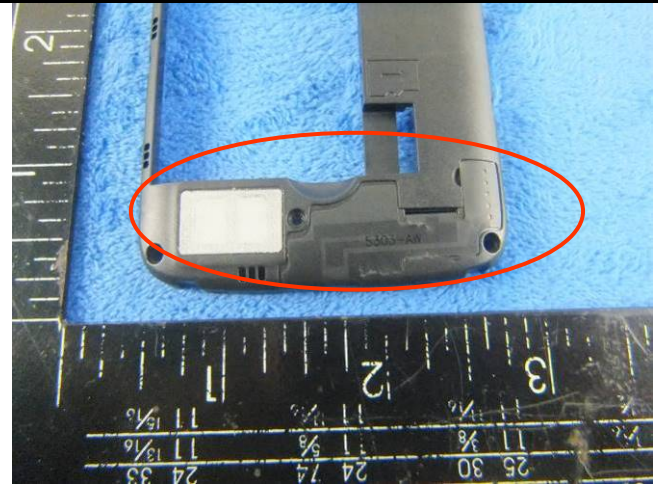
Mainboard without Shielding - Front View



LCD - Front View



LCD - Rear View

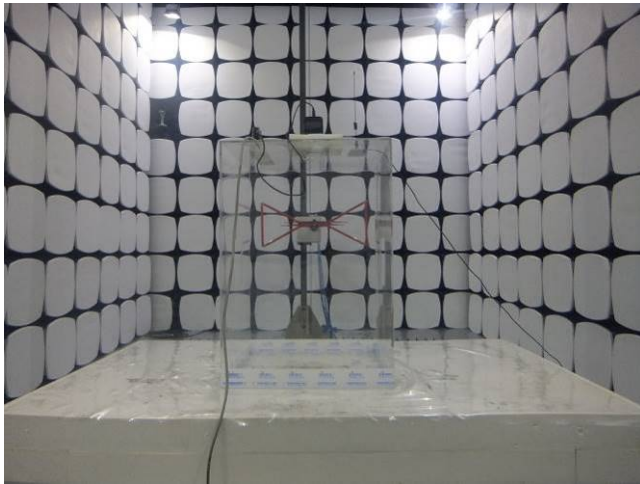


GSM/PCS/UMTS-FDD Antenna View

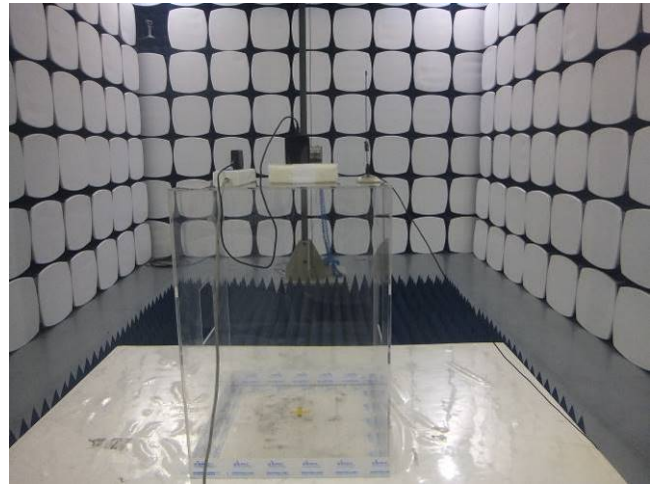


WIFI/BT/BLE/GPS - Antenna View

**Annex B.iii. Photograph: Test Setup Photo**



Radiated Spurious Emissions Test Setup Below 1GHz

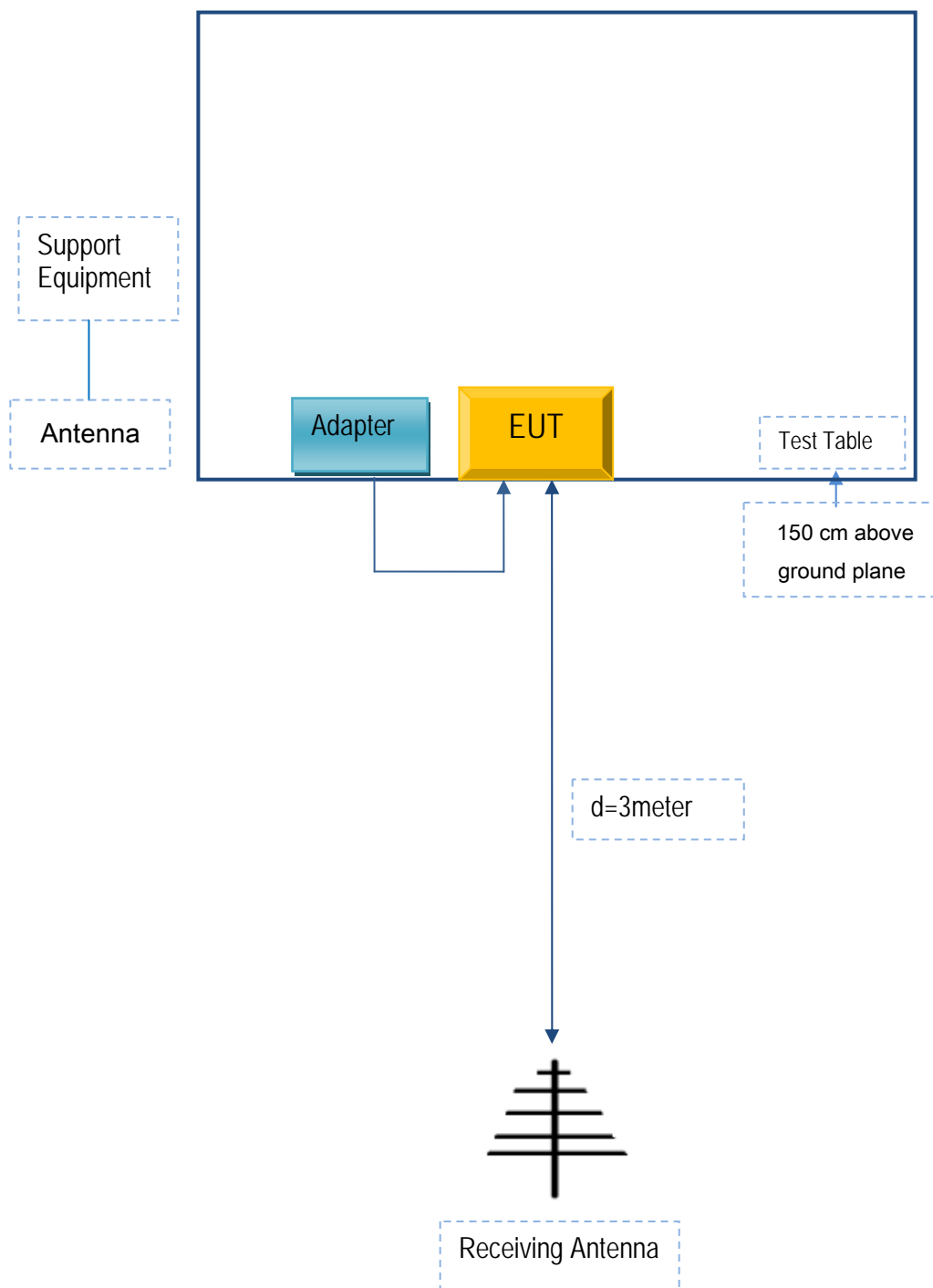


Radiated Spurious Emissions Test Setup Above  
1GHz

## 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
Social Mobile Telecommunications	Adapter	PC325	P010253

### **Supporting Cable:**

Cable type	Shield Type	Ferrite Core	Length	Serial No
USB Cable	Un-shielding	No	0.8m	P010253

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## Annex C.ii. EUT OPERATING CONKITIONS

N/A



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

N/A

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## Annex E. DECLARATION OF SIMILARITY

N/A