



# **CERTIFICATION TEST REPORT**

**Report Number. :** 11775548-E2V1

**Applicant :** SONY MOBILE COMMUNICATIONS, INC.  
4-12-3 HIGASHI-SHINAGAWA,  
SHINAGAWA -KU, TOKYO, 140-0002, JAPAN

**FCC ID :** PY7-10720W

**EUT Description :** GSM/WCDMA/LTE Phone with BT, DTS/UNII a/b/g/n/ac, GPS & NFC

**Test Standard(s) :** FCC 47 CFR PART 15 SUBPART C

**Date Of Issue:**

August 04, 2017

**Prepared by:**

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NVLAP LAB CODE 200065-0

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Revision History

<u>Rev.</u>	<u>Issue Date</u>	<u>Revisions</u>	<u>Revised By</u>
V1	08/04/17	Initial Review	D. Corona

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# 1. ATTESTATION OF TEST RESULTS

**COMPANY NAME:** SONY MOBILE COMMUNICATIONS, INC.  
4-12-3 HIGASHI-SHINAGAWA,  
SHINAGAWA -KU, TOKYO, 140-0002, JAPAN

**EUT DESCRIPTION:** GSM/WCDMA/LTE Phone with BT, DTS/UNII a/b/g/n/ac, GPS & NFC

**SERIAL NUMBER:** RADIATED: BH9000HG8, BH90009E85  
CONDUCTED: BH9000U97W, BH9000TU7W

**DATE TESTED:** JULY 08 – AUGUST 03, 2017

APPLICABLE STANDARDS	
STANDARD	TEST RESULTS
CFR 47 Part 15 Subpart C	Pass

UL Verification Services Inc. tested the above equipment in accordance with the requirements set forth in the above standards. All indications of Pass/Fail in this report are opinions expressed by UL Verification Services Inc. based on interpretations and/or observations of test results. Measurement Uncertainties were not taken into account and are published for informational purposes only. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

**Note:** The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. This document may not be altered or revised in any way unless done so by UL Verification Services Inc. and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by UL Verification Services Inc. will constitute fraud and shall nullify the document. This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, any agency of the Federal Government, or any agency of any government.

Approved & Released For  
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UL VERIFICATION SERVICES INC.

Prepared By:



KIYA KEDIDA  
WiSE LAB ENGINEER  
UL VERIFICATION SERVICES INC.

## 2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with FCC CFR 47 Part 2, FCC CFR 47 Part 15 and ANSI C63.10-2013.

## 3. FACILITIES AND ACCREDITATION

The test sites and measurement facilities used to collect data are located at 47173 and 47266 Benicia Street, Fremont, California, USA. Line conducted emissions are measured only at the 47173 address. The following table identifies which facilities were utilized for radiated emission measurements documented in this report. Specific facilities are also identified in the test results sections.

47173 Benicia Street	47266 Benicia Street
<input type="checkbox"/> Chamber A(IC: 2324B-1)	<input type="checkbox"/> Chamber D(IC: 22541-1)
<input checked="" type="checkbox"/> Chamber B(IC: 2324B-2)	<input type="checkbox"/> Chamber E(IC: 22541-2)
<input type="checkbox"/> Chamber C(IC: 2324B-3)	<input type="checkbox"/> Chamber F(IC: 22541-3)
	<input type="checkbox"/> Chamber G(IC: 22541-4)
	<input type="checkbox"/> Chamber H(IC: 22541-5)

The above test sites and facilities are covered under FCC Test Firm Registration # 208313. UL Verification Services Inc. is accredited by NVLAP, Laboratory Code 200065-0. Chambers A through C are covered under Industry Canada company address code 2324B with site numbers 2324B -1 through 2324B-3, respectively. Chambers D through H are covered under Industry Canada company address code 22541 with site numbers 22541 -1 through 22541-5, respectively.

## 4. CALIBRATION AND UNCERTAINTY

### 4.1. MEASURING INSTRUMENT CALIBRATION

The measuring equipment utilized to perform the tests documented in this report has been calibrated in accordance with the manufacturer's recommendations, and is traceable to recognized national standards.

### 4.2. SAMPLE CALCULATION

Where relevant, the following sample calculation is provided:

$$\begin{aligned} \text{Field Strength (dBuV/m)} &= \text{Measured Voltage (dBuV)} + \text{Antenna Factor (dB/m)} + \\ &\text{Cable Loss (dB)} - \text{Preamp Gain (dB)} \\ 36.5 \text{ dBuV} + 18.7 \text{ dB/m} + 0.6 \text{ dB} - 26.9 \text{ dB} &= 28.9 \text{ dBuV/m} \end{aligned}$$

### 4.3. MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the apparatus:

Parameter	Uncertainty
Worst Case Conducted Disturbance, 9KHz to 0.15 MHz	3.84 dB
Worst Case Conducted Disturbance, 0.15 to 30 MHz	3.65 dB
Worst Case Radiated Disturbance, 9KHz to 30 MHz	3.15 dB
Worst Case Radiated Disturbance, 30 to 1000 MHz	5.36 dB
Worst Case Radiated Disturbance, 1000 to 18000 MHz	4.32 dB
Worst Case Radiated Disturbance, 18000 to 26000 MHz	4.45 dB
Worst Case Radiated Disturbance, 26000 to 40000 MHz	5.24 dB

Uncertainty figures are valid to a confidence level of 95%.

## 5. EQUIPMENT UNDER TEST

### 5.1. DESCRIPTION OF EUT

The EUT is a GSM/WCDMA/LTE Phone with BT, DTS/UNII a/b/g/n/ac, GPS & NFC.

## 6. REUSE OF TEST DATA

### 6.1. INTRODUCTION

According to the manufacturer, FCC ID:PY7-32042D and PY7-10720W unlicensed radios (WLAN/BT/BLE/NFC) are electrically identical. They share the same chipset, same power and same antenna performance including antenna gain. The FCC ID: PY7-32042D test data shall remain representative of FCC ID: PY7-10720W so, FCC ID: PY7-10720W leverages test data from FCC ID: PY7-32042D.

The applicant takes full responsibility that the test data as referenced in this section represents compliance for this FCC ID.

### 6.2. DEVICES DIFFERENCES

Difference between PY7-32042D and PY7-10720W:

Various components were removed from PY7-32042D to establish PY7-10720W; such components are related only to the cellular part and there are no changes in non-cellular (WLAN/BT/BLE/NFC) parts, which are electronically identical.

### 6.1. SPOT CHECK VERIFICATION RESULTS SUMMARY

Spot check verification has been done on device PY7-10720W for radiated harmonic spurious and radiated band-edge. The data from the application has been verified through appropriate spot checks to demonstrate compliance for this device as shown in the summary and appendix A.

### 6.2. REFERENCE DETAIL

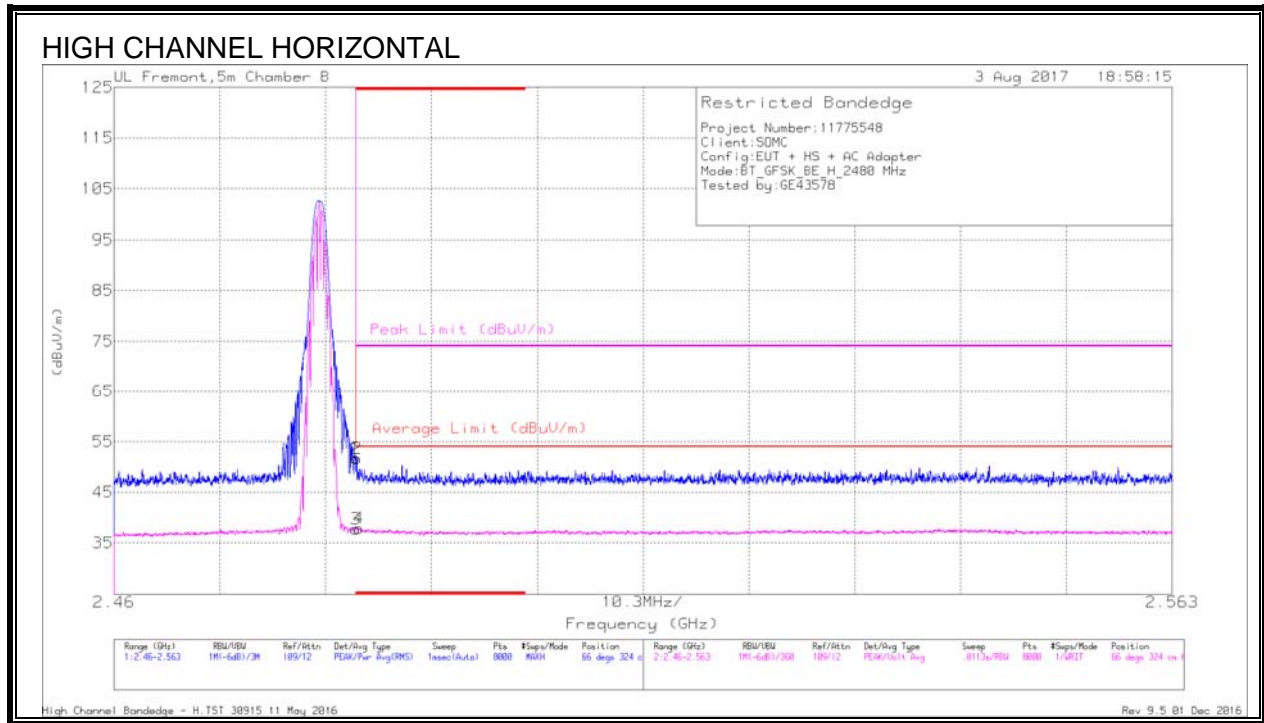
Equipment Class	Reference FCC ID	Report Title/Section
<b>DSS (BT)</b>	<b>PY7-32042D</b>	<b>11760905-E2V1 FCC Report BT</b>
DTS (BLE)	PY7-32042D	11760905-E3V1 FCC Report BLE
DTS (WLAN)	PY7-32042D	11760905-E4V1 FCC Report DTS
UNII (WLAN)	PY7-32042D	11760905-E5V1 FCC Report UNII



## 7. SPOT CHECK VERIFICATION

### 7.1. BASIC DATA RATE GFSK MODULATION

#### 7.1.1. AUTHORIZED BANDEDGE (HIGH CHANNEL)



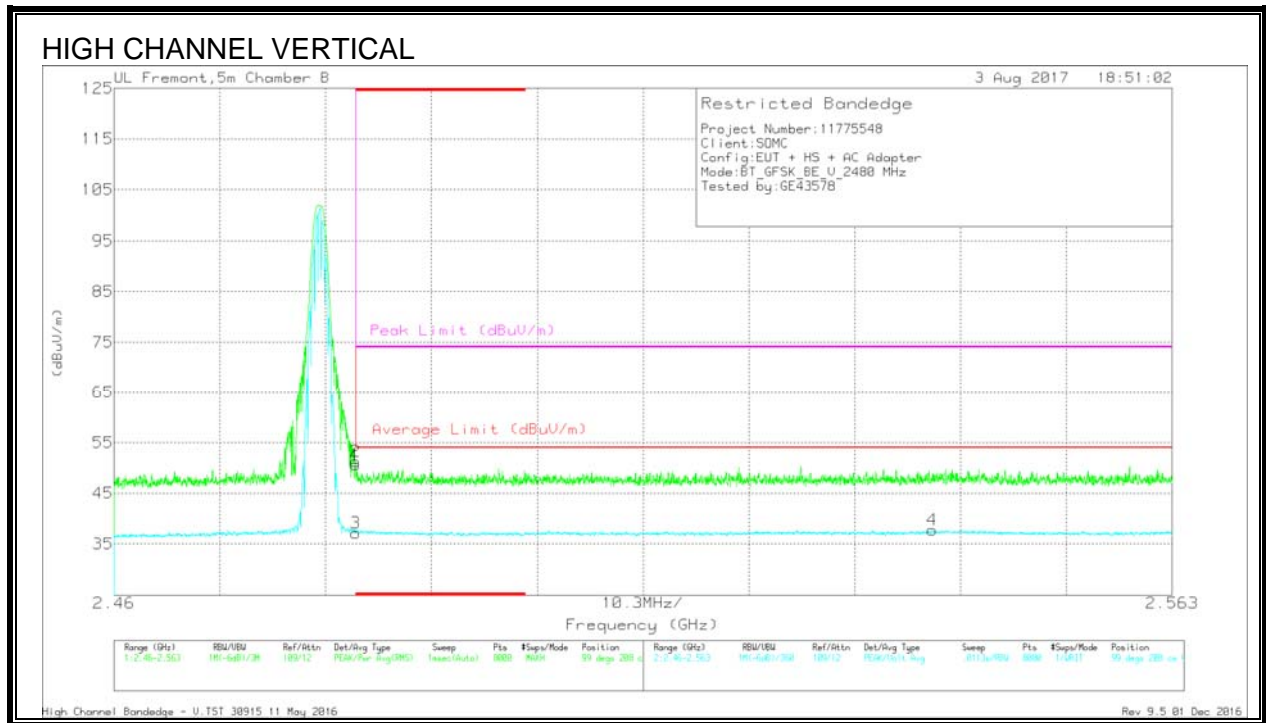
#### Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T863 (dB/m)	Amp/Cb/Ftr/Pa d (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.484	40.14	Pk	32.5	-20.9	51.74	-	-	74	-22.26	66	324	H
2	* 2.484	40.09	Pk	32.5	-20.9	51.69	-	-	74	-22.31	66	324	H
3	* 2.484	26.15	VA1T	32.5	-20.9	37.75	54	-16.25	-	-	66	324	H
4	* 2.484	26.26	VA1T	32.5	-20.9	37.86	54	-16.14	-	-	66	324	H

\* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

Pk - Peak detector

VA1T - FHSS: Linear Voltage Average  $VB=1/Ton$  where:  $Ton$  is transmit duration



Trace Markers

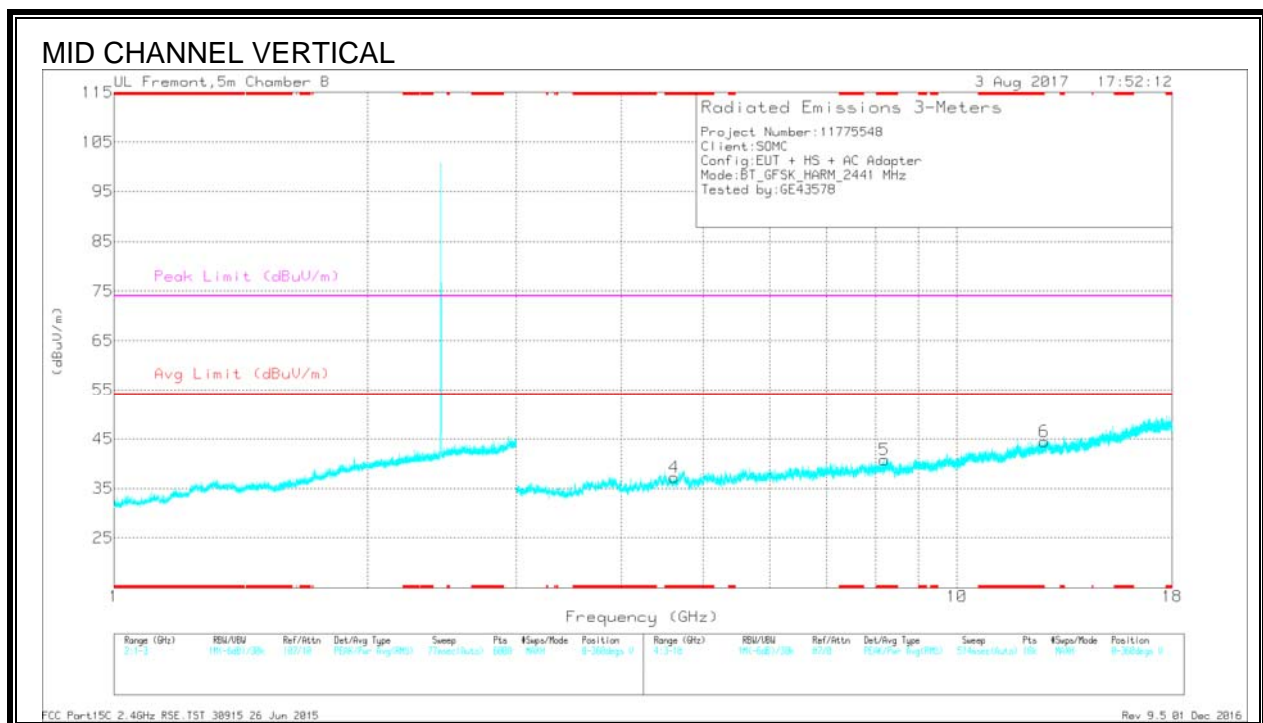
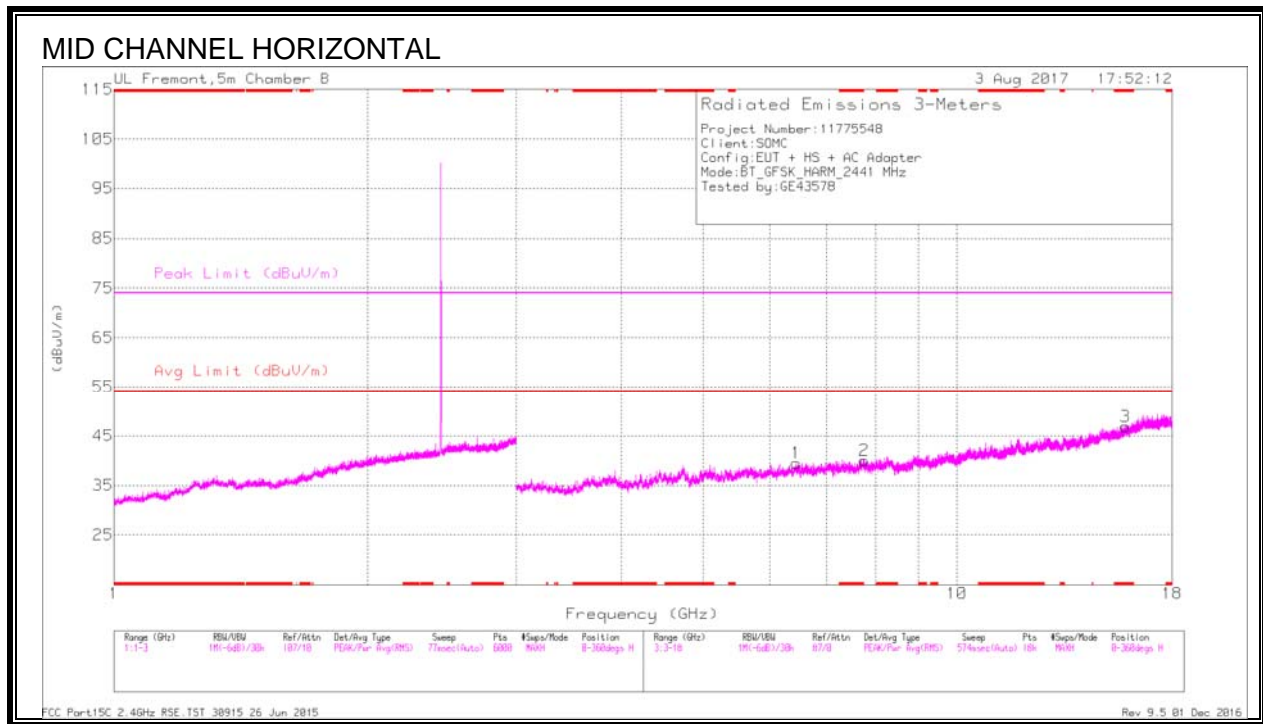
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T863 (dB/m)	Amp/Cb/Filtr/Pa d (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.484	39.09	Pk	32.5	-20.9	50.69	-	-	74	-23.31	99	208	V
2	* 2.484	39.72	Pk	32.5	-20.9	51.32	-	-	74	-22.68	99	208	V
3	* 2.484	25.54	VA1T	32.5	-20.9	37.14	54	-16.86	-	-	99	208	V
4	2.54	25.98	VA1T	32.5	-20.7	37.78	54	-16.22	-	-	99	208	V

\* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

Pk - Peak detector

VA1T - FHSS: Linear Voltage Average  $V_B=1/T_{on}$  where:  $T_{on}$  is transmit duration

### 7.1.2. HARMONICS AND SPURIOUS EMISSIONS



Radiated Emissions

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T863 (dB/m)	Amp/Cbl/Filtr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
3	* 15.854	29.64	PKFH	41	-19	51.64	-	-	74	-22.36	244	199	H
	* 15.857	18.98	VA1T	41	-18.9	41.08	54	-12.92	-	-	244	199	H
4	* 4.62	38.12	PKFH	34.3	-30.5	41.92	-	-	74	-32.08	265	104	V
	* 4.624	27.61	VA1T	34.3	-30.5	31.41	54	-22.59	-	-	265	104	V
5	* 8.202	35.89	PKFH	36	-26.4	45.49	-	-	74	-28.51	276	104	V
	* 8.204	24.28	VA1T	36	-26.6	33.68	54	-20.32	-	-	276	104	V
6	* 12.697	31.41	PKFH	39.3	-22.4	48.31	-	-	74	-25.69	115	200	V
	* 12.696	20.66	VA1T	39.3	-22.4	37.56	54	-16.44	-	-	115	200	V
1	6.448	25.34	VA1T	35.7	-27.9	33.14	-	-	-	-	288	101	H
	6.449	37.3	PKFH	35.7	-28	45	-	-	-	-	288	101	H
2	7.767	23.42	VA1T	36	-25.8	33.62	-	-	-	-	37	199	H
	7.768	34.53	PKFH	36	-25.8	44.73	-	-	-	-	37	199	H

\* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

PKFH - FHSS: RB=100k/1MHz VB=3 x RB, Peak

VA1T - FHSS: Linear Voltage Average VB=1/Ton where: Ton is transmit duration

**APPENDIX A**

<b>PY7-10720W SPOT CHECK RESULTS</b>									
Technology	Test Item	Channel	Measured Frequency	PY7-32042D		PY7-10720W		Delta (dB)	
				Peak	Ave	Peak	Ave	Peak	Ave
<b>BT</b>	<b>RBE</b>	<b>78</b>	<b>2480 MHz</b>	<b>51.59</b>	<b>36.38</b>	<b>51.74</b>	<b>37.86</b>	<b>0.15</b>	<b>1.48</b>
	<b>RSE</b>	<b>39</b>	<b>15.85 GHz</b>	<b>54.74</b>	<b>42.73</b>	<b>51.64</b>	<b>41.08</b>	<b>-3.1</b>	<b>-1.65</b>
Note: GFSK is the worst mode									
BLE	RBE	39	2480	48.29	38.27	50.25	40.19	2.04	1.92
	RSE	19	11.495 GHz	52.83	41.19	49.56	38.38	-3.27	-2.81
Note:									
DTS	RBE	13	2472 MHz	65.62	51.12	65.65	50.24	0.03	-0.88
	RSE	6	10.99 GHz	48.96	37.89	49.22	37.17	0.26	-0.72
NOTE: 802.11n HT20 is the worst mode									
UNII (20MHz)	RBE	100	5500 MHz	61.67	46.11	62	47.87	0.33	1.76
	RSE	100	12.48 GHz	49.12	36.28	49.99	38.7	0.87	2.42
NOTE: 802.11n HT20 is the worst mode									

**END OF REPORT**