

1. Test Information

Applicant: SAGEMCOM BROADBAND SAS
Address: 4 ALLEE DES MESSAGERIES - 92271 BOIS-COLOMBES CEDEX - FRANCE
Product name: 5GNR CPE Router
Model name:FAST5984
Series Model: BGW830-900
Test Date: 2025-10-15
Test by: SAGEMCOM Broadband SAS
Test Personnel: SANNI Albert

2. Test Location

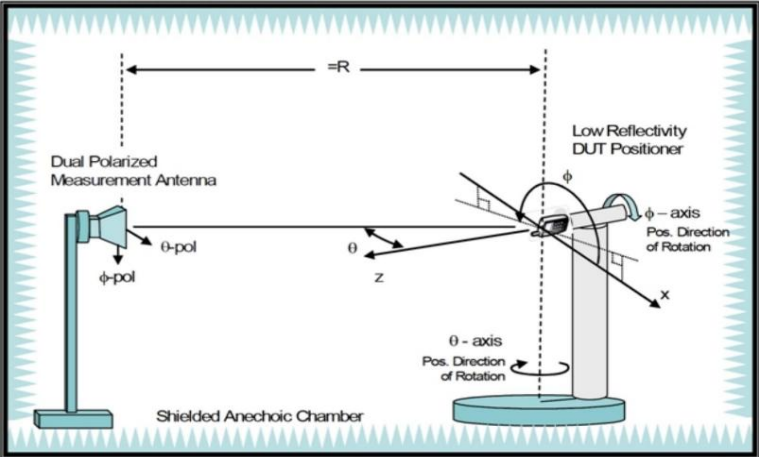
Test Lab: SAGEMCOM
Address: 4 ALLEE DES MESSAGERIES - 92271 BOIS-COLOMBES CEDEX - FRANCE

3. Test Frequency

Band (MHz) Test Frequency (MHz)
698~716
788~798
824~849
1710 ~1780
1850~1910
2412 ~ 2462 2412, 2437, 2462
3300~3970
5150 ~ 5250 5180, 5240
5250 ~ 5350 5320
5470 ~ 5725 5500, 5600, 5700
5725 ~ 5850 5825

3.Test Configuration

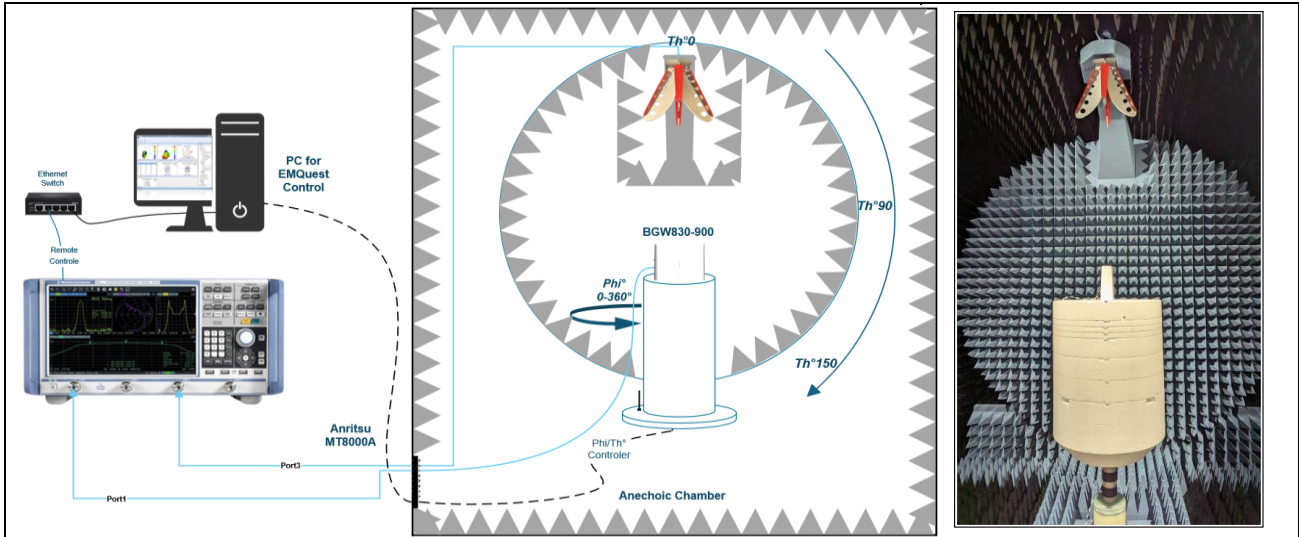
Reference to CTIA "ctia-test-plan-for-wireless-device-over-the-air-performance-ver-3-7-1



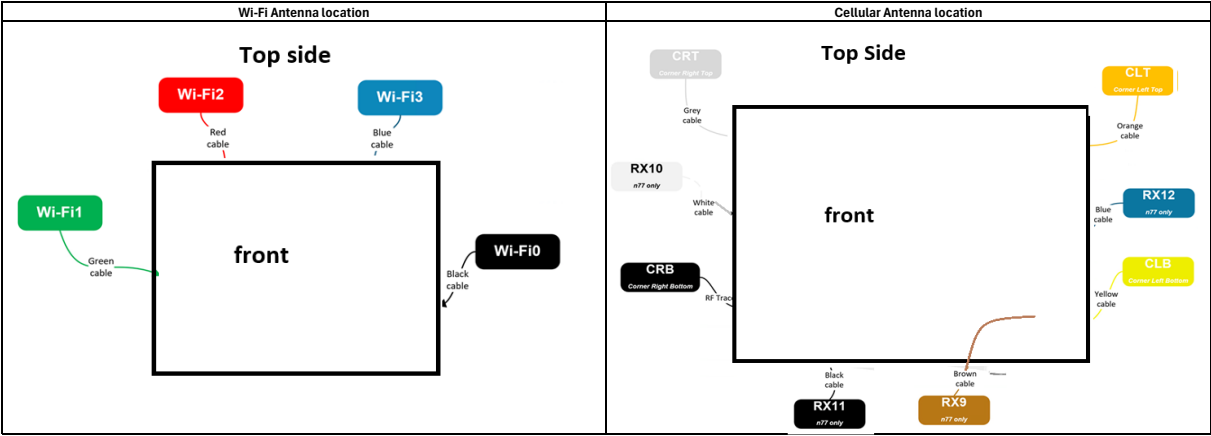
4.Calibration Table

Instrument Name	N° SAGEMCOM	Manufacturer	Model No.	Asset No.	Cali interval	Cal. Due date	Test Site
Signal Generator / Analyzer	204401	R&S	ZNB20		4 years	01/12/2026	SAGEMCOM BLB
Shielding Room		ETS LINGRED	AMS-8813		4 years		SAGEMCOM BLB
Thermohygrometer	204579	Chauvin Arnoux	©.A 1246	CEC F5/14177	1 year	13/08/2025	SAGEMCOM BLB
Antenna		ETS LINGRED	3164-10		4 years		SAGEMCOM BLB

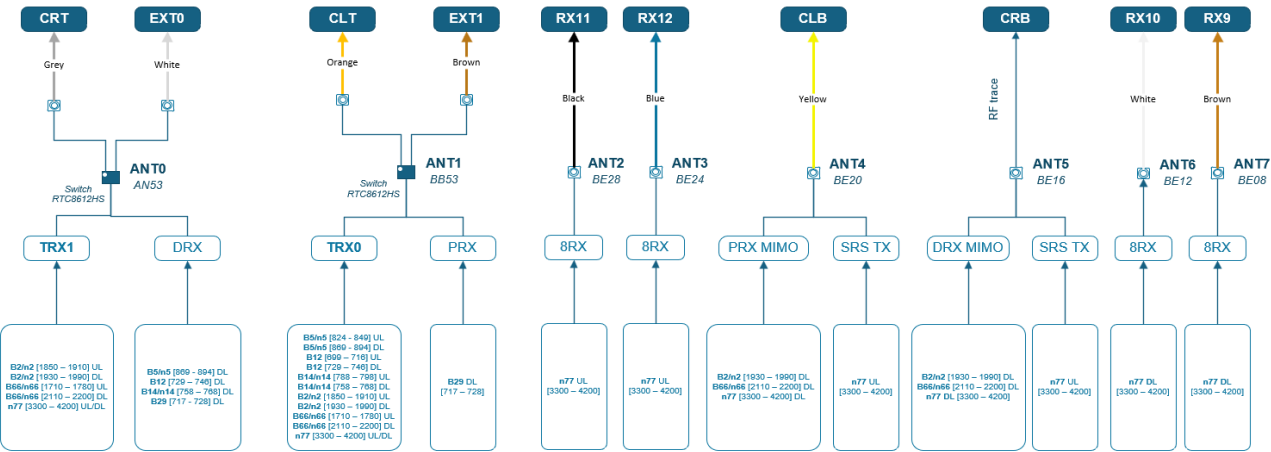
4.Measurement Setup



The figures above show the measurement setup corresponding to the SAGEMCOM OTA system used for antenna passive characterization. Measurements are performed inside an ETS-LINDGREN RFD-FA-60 anechoic chamber equipped with a dual-axis positioner/arm (Φ, θ), enabling full 3D radiation pattern acquisition. Since both the DUT antenna and the test horn antenna are connected to a single port of the R&S ZNB8 Vector Network Analyzer, the VNA functions as both signal generator and receiver to obtain S21 and quantify the transmitted power level. Meanwhile, the EMQuest software controls the Φ positioner and the θ arm, synchronizes the measurements, and computes the gain level for each polarization. The system operates using a calibrated reference antenna and ensures accurate free-space conditions for radiated performance evaluation.



6.Cellular Antenna Mapping



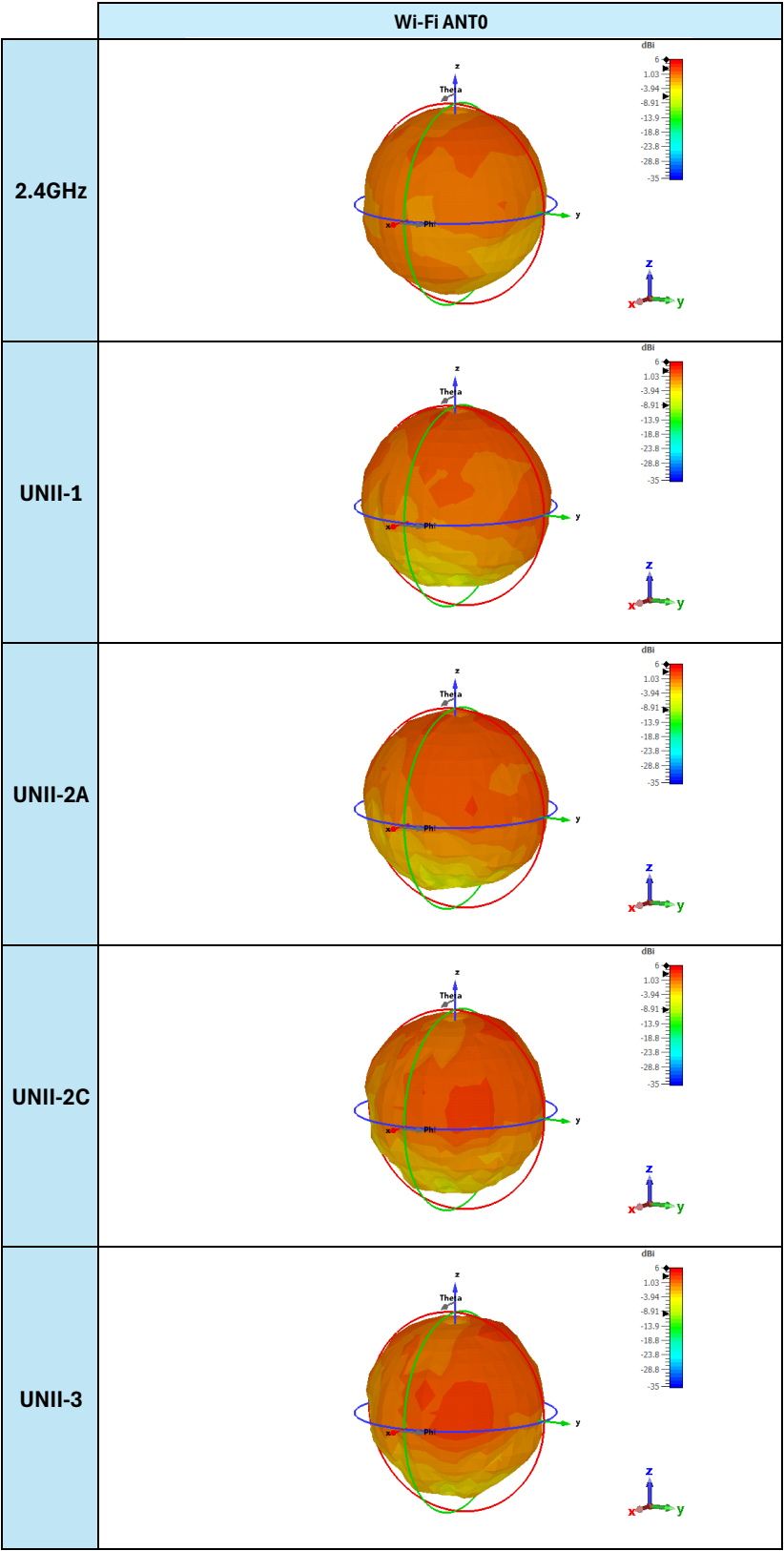
WWAN UE Antenna specification													
Antenna NO.	Region	RF Chain NO.	Brand	Model	Antenna Type	Connector Type	Cable Length	Cable Color	Band	Frequency range	Antenna Gain Hpolat (dBi)	Antenna Gain Vpolat (dBi)	Priority
CRT	US	0	COLFLY	10A090200302	FPC	UF-L	280.5+3	Grey	LTE & NR Band (2)	1850~1910	0.9	1.1	Diversity Tx Antenna
									LTE & NR Band (5)	824~849	Rx Only	Rx Only	
									LTE Band (12)	698~716	Rx Only	Rx Only	
									LTE & NR Band (14)	788~798	Rx Only	Rx Only	
									LTE & NR Band (66)	1710~1780	-0.3	1.1	
									NR Band (77) Range B	3300~3540	2.8	2.3	
									NR Band (77) Range A	3710~3970	1.4	1.8	
CLT	US	1	COLFLY	10A050200501	FPC	UF-L	205+3	Orange	LTE & NR Band (2)	1850~1910	4	1.9	Main Tx Antenna
									LTE & NR Band (5)	824~849	2.8	0.9	
									LTE Band (12)	698~716	-0.3	0.5	
									LTE & NR Band (14)	788~798	1.6	1.2	
									LTE & NR Band (66)	1710~1780	2	0.9	
									NR Band (77) Range B	3300~3540	2.4	1.5	
									NR Band (77) Range A	3710~3970	2.2	1.7	
CLB	US	4	SAGEMCOM	10C060100500	PCB Embedded	UF-L	285+3	Yellow	LTE & NR Band (2)	1850~1910	Rx Only	Rx Only	/
									LTE & NR Band (66)	1710~1780	Rx Only	Rx Only	
									NR Band (77) Range B	3300~3540	Rx Only	Rx Only	
									NR Band (77) Range A	3710~3970	Rx Only	Rx Only	
CRB	US	5	SAGEMCOM	/	PCB Embedded	No Connector	No Cable	/	LTE & NR Band (2)	1850~1910	Rx Only	Rx Only	/
									LTE & NR Band (66)	1710~1780	Rx Only	Rx Only	
									NR Band (77) Range B	3300~3540	Rx Only	Rx Only	
									NR Band (77) Range A	3710~3970	Rx Only	Rx Only	
RX9	US	7	COLFLY	10A050100301	Dipole	UF-L	228+3	Brown	NR Band (77) Range B	3300~3540	Rx Only	Rx Only	/
									NR Band (77) Range A	3710~3970	Rx Only	Rx Only	
RX10	US	6	COLFLY	10A010100900	Dipole	UF-L	199.5+3	White	NR Band (77) Range B	3300~3540	Rx Only	Rx Only	/
									NR Band (77) Range A	3710~3970	Rx Only	Rx Only	
RX11	US	2	COLFLY	10A020108800	Dipole	UF-L	69+3	Black	NR Band (77) Range B	3300~3540	Rx Only	Rx Only	/
									NR Band (77) Range A	3710~3970	Rx Only	Rx Only	
RX12	US	3	COLFLY	10A020202000	Dipole	UF-L	248+3	Blue	NR Band (77) Range B	3300~3540	Rx Only	Rx Only	/
									NR Band (77) Range A	3710~3970	Rx Only	Rx Only	

DG Correlated (Calculation details)												Max Angles	
Band	Frequency range	ANT0 (CRT)	ANT1 (CLT)	Antenna NO.	RF Chain NO.	Model	Antenna Type	Connecteurs	Directional Gain (dBi)			Phi	Th
NR Band (77) Range B	3300~3540	2.85	0.25	CRT + CLT	0 + 1	10A090200302 + 10A050200501	2xFPC	2xUF-L	3.9			350	30
NR Band (77) Range A	3710~3970	-0.2	0.4	CRT + CLT	0 + 1	10A090200302 + 10A050200501	2xFPC	2xUF-L	2.7			220	20

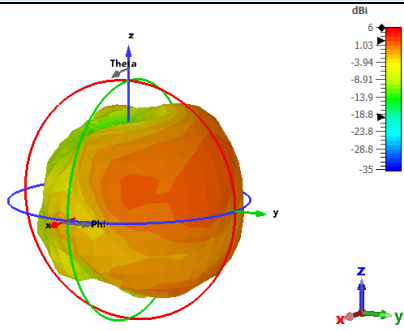
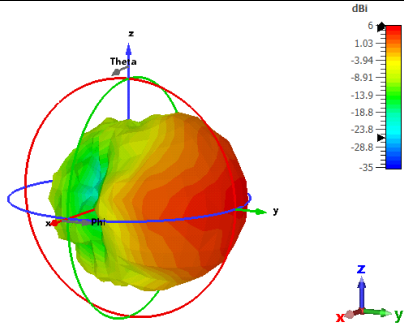
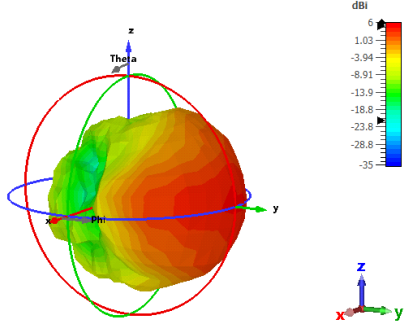
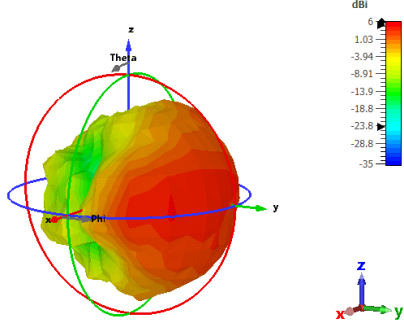
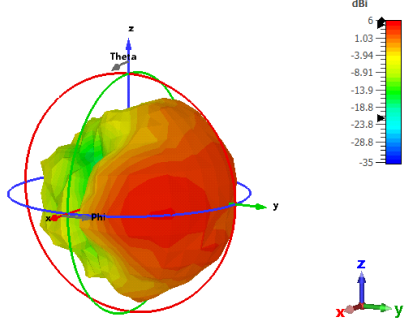
WLAN UE Antenna specification										
Antenna NO.	Region	RF Chain NO.	Brand	Model	Frequency range	Antenna Net Gain(dBi)	Antenna Type	Connector Type	*Cable Length	Cable Color
Wi-Fi0	US	0	COLFLY	10A020107600	2.4~2.4835GHz	2.8	Balanced Dipole	UF-L	147±3	Black
					5.15~5.25GHz	5.3				
					5.25~5.35GHz	5.1				
					5.47~5.725GHz	5.4				
					5.725~5.85GHz	4.9				
Wi-Fi1	US	1	COLFLY	10A070100800	2.4~2.4835GHz	4.3	Balanced Dipole	UF-L	168±3	Green
					5.15~5.25GHz	4.9				
					5.25~5.35GHz	5.1				
					5.47~5.725GHz	5.6				
					5.725~5.85GHz	5				
Wi-Fi2	US	2	COLFLY	10A040100700	2.4~2.4835GHz	3.9	Balanced Dipole	UF-L	106±3	Red
					5.15~5.25GHz	4				
					5.25~5.35GHz	4				
					5.47~5.725GHz	4.2				
					5.725~5.85GHz	3.4				
Wi-Fi3	US	3	COLFLY	10A080101000	2.4~2.4835GHz	4.9	Balanced Dipole	UF-L	157.5±3	Blue
					5.15~5.25GHz	4.3				
					5.25~5.35GHz	4.4				
					5.47~5.725GHz	4.5				
					5.725~5.85GHz	3.9				

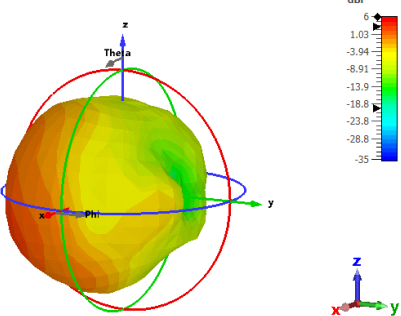
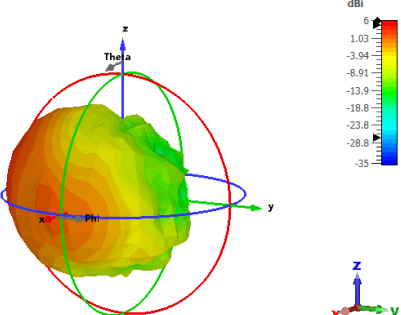
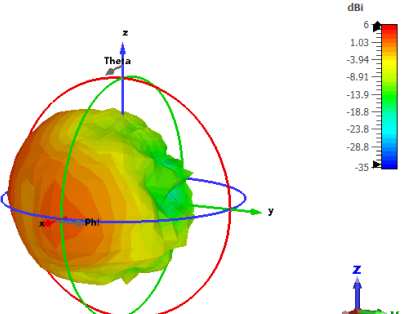
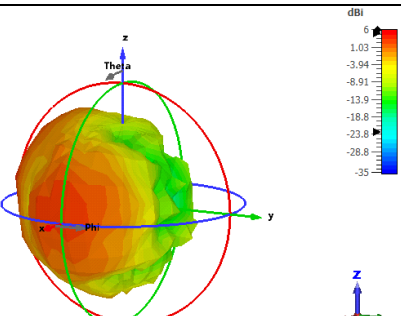
Directional Gain (Beamforming) - Correlated Calculation method : KDB 662911 D01 v02r01 F.2.d.i Directional gain = 10 log $[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2 / N_{\text{ant}}]$ dBi	2.4~2.4835GHz	4.3	Combined	Combined	Combined	Combined
	5.15~5.25GHz	3.5				
	5.25~5.35GHz	4				
	5.47~5.725GHz	4.5				
	5.725~5.85GHz	4.7				

DG Correlated (Calculation details)									
Bands	Frequency	Wi-Fi ANT0	Wi-Fi ANT1	Wi-Fi ANT2	Wi-Fi ANT3	Directional Gain	Actual Calculated	Max Angles	
								Phi	Th
2.4GHz	2412	-1.88	-0.35	-3.26	-1.79	4.3	4.26	200	60
UNII-1	5180	-7.7	-4.92	0.73	-1.57	3.5	3.23	260	20
UNII-2A	5320	-5.07	-10.37	-0.21	0.76	4	3.31	90	20
UNII-2C	5700	0.26	-10.18	-1.33	0.68	4.5	4.3	100	30
UNII-3	5825	0.14	-9.29	1.38	-1.38	4.7	4.57	80	30



The above plots represent radiation patterns, obtained by combining all antennas in accordance with the methodology defined in FCC KDB 662911 D01 v02r01, Section F.2.d.i, and evaluated over the full spherical surface enclosing the equipment under test. Each Pattern corresponds to the maximum radiation pattern between both polarization at a specific frequency range.

Wi-Fi ANT0	
2.4GHz	
UNII-1	
UNII-2A	
UNII-2C	
UNII-3	

Wi-Fi ANT1	
2.4GHz	
UNII-1	
UNII-2A	
UNII-2C	
UNII-3	