1. MAXIMUM PERMISSIBLE EXPOSURE (MPE)

1.1 General Information

Client Information

Applicant:	Shenzhen QiyueOptronics Company Limited
Address of applicant:	Flat3,Tower 3, Excellence Meilin Center Plaza, Zhongkang Road 128, Shangmeilin, Futian District, Shenzhen, China
Manufacturer:	SHENZHEN QIYUE OPTRONICS COMPANY LIMITED BRANCH
Address of manufacturer:	SEIYU INDUSTRIAL PARK,DA SAN VILLAGE,DA SHUI KENG,GUANLAN TOWN,LONGHUA NEW DISTRICT, SHENZHEN,P.R.C

General Description of EUT:

Product Name:	55 INCH SMART4KUHD TV
Trade Name:	RCA smarTVirtuoso,RCA, PROSCAN, RCA SCENIUM, TECHNICOLOR, SYLVANIA
Model No.:	RQSM5527
Adding Model(s):	XXXXXXXXXXXXXXXXXX86XXXXXXXXXXXXXXXXXX (Where “X” can be any alphanumeric of A-Z or 0-9 or blank or -, indicates different client)
FCC ID:	XOMQ55S218
Rated Voltage:	AC 100-240V

Technical Characteristics of EUT:

Support Standards:	802.11b, 802.11g, 802.11n
Frequency Range:	2412-2462MHz for 802.11b/g/n(HT20) 2422-2452MHz for 802.11n(HT40)
Max RF Output Power:	23.93dBm (Conducted)
Type of Modulation:	DBPSK,BPSK,DQPSK,QPSK,16QAM,64QAM
Type of Antenna:	Integral Antenna
Antenna Gain:	ANT1:4.44 dBi, ANT2:4.44dBi
Device Category:	Mobile Device

Note 2: The test data is gathered from a production sample provided by the manufacturer. The appearance of others models listed in the report is different from main-test model XOMQ55S218, but the circuit and the electronic construction do not change, declared by the manufacturer.

1.2 Standard Applicable

According to § 1.1307(b)(1) and KDB 447498 D01 General RF Exposure Guidance v06, system operating under the provisions of this section shall be operating in a manner that the public is not exposed to radio frequency energy level in excess limit for maximum permissible exposure.

(a) Limits for Occupational / Controlled Exposure

Frequency range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/cm^2)	Averaging Times $\|E\|^2$, $\|H\|^2$ or S (minutes)
0.3-3.0	614	1.63	(100)*	6
3.0-30	1842/f	4.89/f	(900/f)*	6
30-300	61.4	0.163	1.0	6
300-1500	/	/	F/300	6
1500-100000	/	/	5	6

(b) Limits for General Population / Uncontrolled Exposure

Frequency range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/cm^2)	Averaging Times $\|E\|^2$, $\|H\|^2$ or S (minutes)
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	(180/f)*	30
30-300	27.5	0.073	0.2	30
300-1500	/	/	F/1500	30
1500-100000	/	/	1	30

Note: f = frequency in MHz: * = Plane-wave equivalents power density

1.3 MPE Calculation Method

$S = (30*P*G) / (377*R^2)$

S = power density (in appropriate units, e.g., mw/cm^2)

P = power input to the antenna (in appropriate units, e.g., mw)

G = power gain of the antenna in the direction of interest relative to an isotropic radiator, the power gain factor is normally numeric gain.

R = distance to the center of radiation of the antenna (in appropriate units, e.g., cm)

1.4 MPE Calculation Result

Maximum output power: 23.93(dBm)
Maximum peak output power at antenna input terminal: 246.92 (mW)
Prediction distance: >20(cm)
Prediction frequency: 2412 (MHz)
Antenna gain: 7.45 (dBi)
Directional gain (numeric gain): 5.56
The worst case is power density at prediction frequency at 20cm: 0.27(mw/cm^2)
MPE limit for general population exposure at prediction frequency: 1 (mw/cm^2)

Result: Pass
Note: Directional gain = G_{ANT} + 10 log(N_{ANT}) =7.45dBi