



# RF TEST REPORT

Product Name: T-BOX

Model Name: ZDCB01

FCC ID: 2AEQT-DSTBX002

Issued For : Huizhou Desay SV Automotive Co., Ltd.

No. 103, Hechang 5th Road West, Zhongkai National Hi-tech  
Industrial Development Zone, Huizhou City, Guangdong Province,  
P.R. China

Issued By : Shenzhen LGT Test Service Co., Ltd.

Room 205, Building 13, Zone B, Zhenxiong Industrial Park, No.177,  
Renmin West Road, Jinsha, Kengzi Street, Pingshan District,  
Shenzhen, Guangdong, China

Report Number: LGT25F032RF02

Sample Received Date: Jun. 10, 2025

Date of Test: Jun. 10, 2025 – Jun. 18, 2025

Date of Issue: Jun. 19, 2025

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# TEST REPORT CERTIFICATION

**Applicant:** Huizhou Desay SV Automotive Co., Ltd.  
**Address:** No. 103, Hechang 5th Road West, Zhongkai National Hi-tech Industrial Development Zone, Huizhou City, Guangdong Province, P.R. China  
**Manufacturer:** Huizhou Desay SV Automotive Co., Ltd.  
**Address:** No. 103, Hechang 5th Road West, Zhongkai National Hi-tech Industrial Development Zone, Huizhou City, Guangdong Province, P.R. China  
**Product Name:** T-BOX  
**Trademark:** DESAY SV  
**Model Name:** ZDCB01  
**Sample Status:** Normal

APPLICABLE STANDARDS	
STANDARD	TEST RESULTS
FCC Part 22, 24, 27 KDB 971168 D01 v03r01, ANSI C63.26(2015)	PASS

Prepared by:

Zane Shan

Zane Shan  
Engineer

Approved by:

Vita Li

Vita Li  
Technical Director



<b>Table of Contents</b>	<b>Page</b>
<b>1. TEST FACTORY &amp; MEASUREMENT UNCERTAINTY</b>	<b>5</b>
<b>2. GENERAL INFORMATION</b>	<b>6</b>
<b>3. RADIATED SPURIOUS EMISSION</b>	<b>12</b>
<b>APPENDIX I - TEST DATA</b>	<b>14</b>
RADIATED SPURIOUS EMISSION	14

**Revision History**

Rev.	Issue Date	Revisions
00	Jun. 19, 2025	Initial Issue

## 1. TEST FACTORY & MEASUREMENT UNCERTAINTY

### 1.1 TEST FACTORY

Company Name:	Shenzhen LGT Test Service Co., Ltd.
Address:	Room 205, Building 13, Zone B, Zhenxiong Industrial Park, No.177, Renmin West Road, Jinsha, Kengzi Street, Pingshan District, Shenzhen, Guangdong, China
Accreditation Certificate	A2LA Certificate No.: 6727.01
	FCC Registration No.: 746540
	CAB ID: CN0136

### 1.2 MEASUREMENT UNCERTAINTY

The reported uncertainty of measurement  $y \pm U$ , where expended uncertainty  $U$  is based on a standard uncertainty multiplied by a coverage factor of  $k=2$ , providing a level of confidence of approximately 95 %.

Parameter	Uncertainty
All Emissions, Radiated (Below 1GHz)	$\pm 3.54\text{dB}$
All Emissions, Radiated (1GHz-18GHz)	$\pm 4.22\text{dB}$
All Emissions, Radiated (18GHz-25GHz)	$\pm 4.81\text{dB}$
Temperature	$\pm 0.5^{\circ}\text{C}$
Humidity	$\pm 2\%$

Note: The measurement uncertainty is not included in the test result.

## 2. GENERAL INFORMATION

### 2.1 TECHNICAL SPECIFICATIONS AND REGULATIONS

#### 2.1.1 PRODUCT DESCRIPTION

A major technical description of EUT is described as following:

Product Name:	T-BOX
Trademark:	DESAY SV
Model Name:	ZDCB01
Series Model:	N/A
Model Difference:	N/A
Frequency Bands:	U.S. Bands: LTE FDD Band 2 LTE FDD Band 4 LTE FDD Band 5 LTE FDD Band 7
SIM Card:	Only one SIM card.
Antenna gain:	Band 2: 1.95dBi, Band 4: 2.31dBi, Band 5: 1.2dBi, Band 7: 4.0dBi
Rating:	Input: DC 9~16V 0.5A
Extreme Vol. Limits:	10.8V to 13.2V (Nominal 12V)
Extreme Temp. Tolerance:	-40°C to + 85°C
Hardware Version:	0.0.3
Software Version:	DSW03.11

Note: The antenna information refer the manufacturer provide report, applicable only to the tested sample identified in the report.

## 2.1.2 PRODUCT SPECIFICATION SUBJECTIVE TO THIS STANDARD

Product Specification Subjective To This Standard	
Tx Frequency	LTE Band 2:1850~1910MHz LTE Band 4:1710~1755MHz LTE Band 5: 824~849MHz LTE Band 7:2500~2570MHz
Rx Frequency	LTE Band 2: 1930-1990MHz LTE Band 4: 2110-2155MHz LTE Band 5: 869-894MHz LTE Band 7: 2620-2690MHz
Bandwidth	LTE Band 2: 1.4MHz / 3MHz / 5MHz / 10MHz / 15MHz / 20MHz LTE Band 4: 1.4MHz / 3MHz / 5MHz / 10MHz / 15MHz /20MHz LTE Band 5: 1.4MHz / 3MHz / 5MHz / 10MHz LTE Band 7: 5MHz / 10MHz / 15MHz /20MHz
Type of Modulation	QPSK/16QAM/64QAM(Downlink only)

### 2.1.3 TEST CONFIGURATION OF EQUIPMENT UNDER TEST

Antenna port conducted and radiated test items listed below are performed according to KDB 971168 D01 v03r01 and ANSI C63.26 2015 Power Meas. License Digital Systems with maximum output power. Radiated measurements are performed by rotating the EUT in three different orthogonal test planes to find the maximum emission.

Remark:

1. The mark 'v' means that this configuration is chosen for testing
2. The mark '-' means that this bandwidth is not supported.
3. The device is investigated from 30MHz to 10 times of fundamental signal for radiated.

ITEMS	Band	Bandwidth (MHz)						Modulation		RB #			Test Channel		
		1.4	3	5	10	15	20	QPSK	16QAM	1	Half	Full	L	M	H
Radiated Spurious Emission	2	v	v	v	v	v	v	v		v			v	v	v
	4	v	v	v	v	v	v	v		v			v	v	v
	5	v	v	v	v			v		v			v	v	v
	7			v	v	v	v	v		v			v	v	v

Note: Base on original FCC ID : 2AEQT-DSTBX002, add an optional antenna configuration(See below Table), update software version, retest RSE, no more test required.

Antenna Configuration	Configuration 1	4G GPS Antenna (MT40BQ)
	Configuration 2 (New)	Shark fin Antenna (TXC802) and 4G Antenna (MT40E1)



#### 2.1.4 RELATED SUBMITTAL(S) / GRANT (S)

This submittal(s) (test report) is intended for filing to comply with the 47 CFR Part 2, 22, 24, 27.

#### 2.1.5 SPECIAL ACCESSORIES

The battery and the charger, earphone supplied by the applicant were used as accessories and being tested with eut intended for fcc grant together.

#### 2.1.6 EUT CONFIGURATION

The EUT configuration for testing is installed on RF field strength measurement to meet the Commission's requirement and operating in a manner which intends to maximize its emission characteristics in a continuous normal application.

#### 2.1.7 EUT EXERCISE

The Transmitter was operated in the maximum output power mode through Communication Tester. The TX frequency was fixed which was for the purpose of the measurements.

### 2.1.8 CONFIGURATION OF EUT SYSTEM

The EUT configuration for testing is installed on RF field strength measurement to meet the Commission's requirement and operating in a manner which intends to maximize its emission characteristics in a continuous normal application.

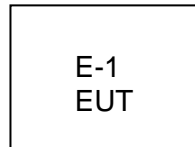


Table 2-1 Equipment Used in EUT System

Item	Equipment	Model No.	Length	Note
N/A				N/A

Note:

- (1) For detachable type I/O cable should be specified the length in cm in 『Length』 column.
- (2) “YES” is means “with core”; “NO” is means “without core”.

### 2.1.9 MEASUREMENT INSTRUMENTS

The radiated emission testing was performed according to the procedures of ANSI C63.26 2015 and FCC CFR 47 rules of 2.1046, 2.1047, 2.1049, 2.1051, 2.1053, 2.1055, 2.1057.

RADIATED TEST EQUIPMENT					
EQUIPMENT	MANUFACTURER	MODEL NO.	SERIAL NO.	CAL. DATE	CAL. UNTIL
ACTIVE LOOP ANTENNA	ETS	6502	00049544	2025.03.11	2028.03.10
SPECTRUM ANALYZER	KEYSIGHT	N9010B	MY60242508	2025.03.05	2026.03.04
TRILOG BROADBAND ANTENNA (30M-1G)	SCHWARZBECK	VULB 9168	2705	2024.05.17	2027.05.16
HORN ANTENNA(1-18G)	SCHWARZBECK	3115	10SL0060	2025.03.10	2028.03.09
HORN ANTENNA(18-40G)	SCHWARZBECK	BBHA 9170	685	2023.10.23	2026.10.22
PRE-AMPLIFIER(30M-1G)	EMTRACE	RP01A	02019	2025.03.06	2026.03.05
PRE-AMPLIFIER(1-26.5G)	AGILENT	8449B	3008A4722	2025.03.06	2026.03.05
PRE-AMPLIFIER(18-40G)	SCHWARZBECK	BBV 9721	9721-019	2024.10.21	2025.10.20
WIRELESS COMMUNICATIONS TEST SET	R&S	CMW 500	137737	2025.03.05	2026.03.04
ANTENNA TOWER	SAEMC	BK-4AT-BS-D	SK2021093008	N.A	N.A
TEMPERATURE & HUMIDITY	JINGCHUANG	BT-3	N.A	2025.03.10	2026.03.09
TESTING SOFTWARE	EMC-I_V1.4.0.3_SKET				

### 3. RADIATED SPURIOUS EMISSION

#### 3.1 DESCRIPTION OF RADIATED SPURIOUS EMISSION

##### 3.1.1 MEASUREMENT METHOD

The radiated spurious emission was measured by substitution method according to ANSI C63.26 2015. 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.

For Band 7 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  $55 + 10 \log (P)$  dB. The spectrum is scanned from 30 MHz up to a frequency including its 10th harmonic.

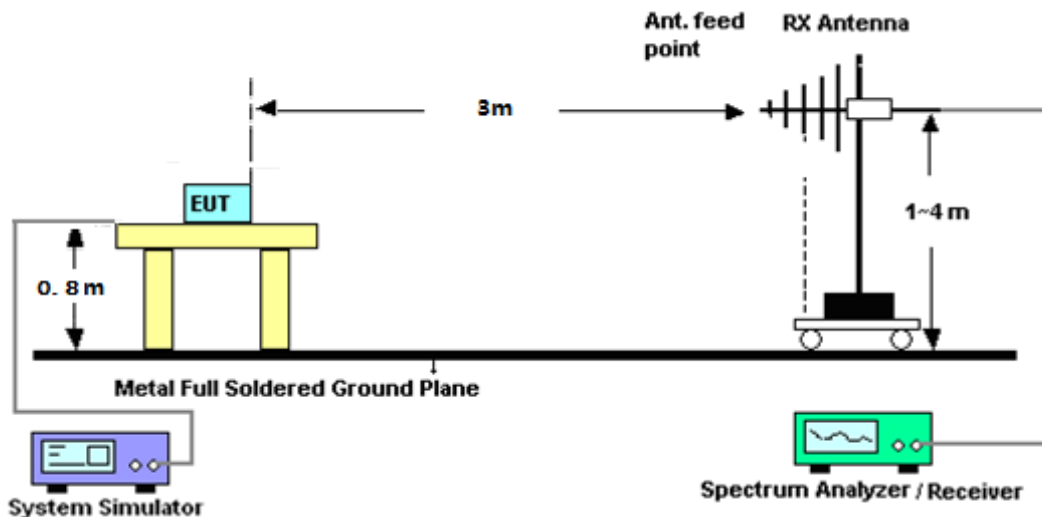
##### 3.1.2 TEST SETUP

The procedure of radiated spurious emissions is as follows:

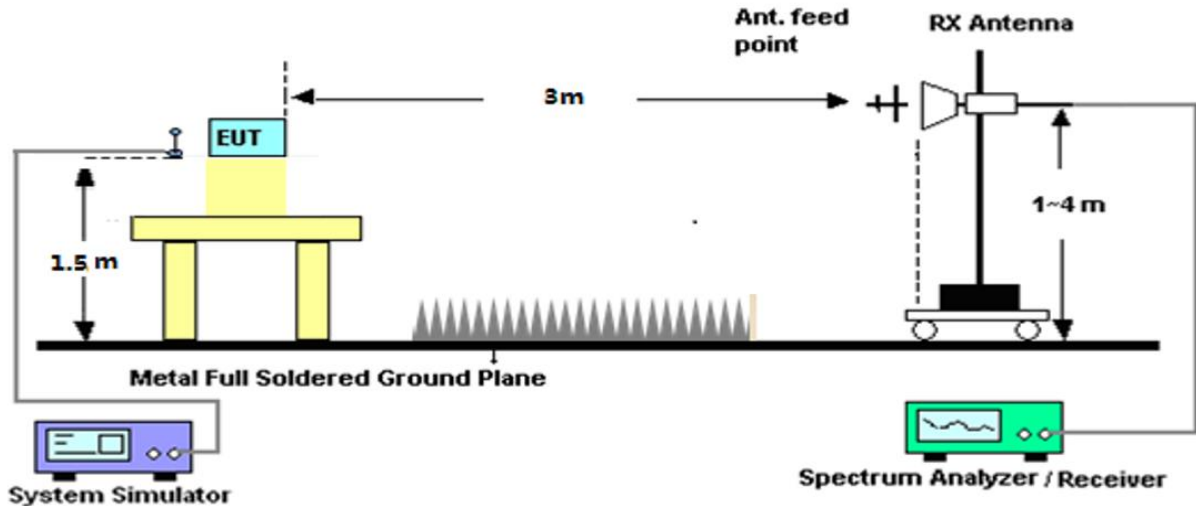
A) EUT was placed on 1.5 m non-conductive stand at a 3 m test distance from the receive antenna. A receiving antenna was placed on the antenna mast 3 m from the test item for emission measurements. The height of receiving antenna is 0.8m. The test setup refers to figure below. Detected emissions were maximized at each frequency by rotating the test item and adjusting the receiving antenna polarization. The radiated emission measurements of all non-harmonic and harmonics of the transmit frequency through the 10th harmonic measured with peak detector and 1MHz bandwidth.

Radiated emissions measurements were made only at the upper, middle, and lower carrier frequencies. It was decided that measurements at these three carrier frequencies would be sufficient to demonstrate compliance with emissions limits because it was seen that all the significant spurs occur well outside the band and no radiation was seen from a carrier in one block of any band into any of the other blocks.

The substitution method is used. Substitution values at each frequency are measured before and saved to the test software. A "reference path loss" is established and the ARpl is the attenuation of "reference path loss", and including the gain of receive antenna, the gain of the preamplifier, the cable loss and the air loss. The measurement results are obtained as described below:  $\text{Power} = \text{PMea} + \text{ARpl}$   
For radiated test from 30MHz to 1GHz



For radiated test from above 1GHz



### 3.1.3 TEST PROCEDURES

1. The testing FCC KDB 971168 D01 Section 7 and ANSI C63.26 2015 Section 5.5.
2. The EUT was placed on a rotatable wooden table with 1.5 meter above ground.
3. The EUT was set 3 meters from the receiving antenna, which was mounted on the antenna tower.
4. The table was rotated 360 degrees to determine the position of the highest spurious emission.
5. The height of the receiving antenna is varied between one meter and four meters to search the maximum spurious emission for both horizontal and vertical polarizations
6. Make the measurement with the spectrum analyzer's RBW = 1MHz, VBW = 3MHz, taking the record of maximum spurious emission.
7. A horn antenna was substituted in place of the EUT and was driven by a signal generator.
8. Tune the output power of signal generator to the same emission level with EUT maximum spurious emission.
9. Taking the record of output power at antenna port.
10. Repeat step 7 to step 8 for another polarization.
11. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.

The limit line is derived from  $43 + 10\log(P)$  dB below the transmitter power P(Watts)

$$= P(W) - [43 + 10\log(P)] \text{ (dB)}$$

$$= [30 + 10\log(P)] \text{ (dBm)} - [43 + 10\log(P)] \text{ (dB)}$$

$$= -13\text{dBm}$$

For Band 7:

The limit line is derived from  $55 + 10\log(P)$  dB below the transmitter power P(Watts)

$$= [30 + 10\log(P)] \text{ (dBm)} - [55 + 10\log(P)] \text{ (dB)}$$

$$= -25\text{dBm}$$

$$P_{\text{Mea}} = S.G \text{ Level} + \text{Ant-Cable loss}; \text{Margin} = P_{\text{Mea}} - \text{Limit}.$$

### 3.1.4 TEST RESULTS

Note: Test chart See Appendix I

## APPENDIX I - TEST DATA

### RADIATED SPURIOUS EMISSION

LTE Band 2 / 20MHz / QPSK / RB Size 1 Offset 0/ The Worst Test Results for Lowest							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea	Limit	Margin	Polarity
				(dBm)	(dBm)	(dBm)	
3720.48	-37.11	7.00	12.93	-43.04	-13.00	-30.04	H
5580.41	-31.93	8.40	17.11	-40.64	-13.00	-27.64	H
7439.87	-26.27	8.10	22.20	-40.37	-13.00	-27.37	H
3720.48	-36.10	7.00	12.93	-42.03	-13.00	-29.03	V
5580.41	-32.25	8.40	17.11	-40.96	-13.00	-27.96	V
7439.87	-25.78	8.10	22.20	-39.88	-13.00	-26.88	V
LTE Band 2 / 20MHz / QPSK / RB Size 1 Offset 0/ The Worst Test Results for Middle							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea	Limit	Margin	Polarity
				(dBm)	(dBm)	(dBm)	
3760.00	-36.25	7.00	12.93	-42.18	-13.00	-29.18	H
5640.00	-31.54	8.40	17.11	-40.25	-13.00	-27.25	H
7520.19	-25.28	8.10	22.20	-39.38	-13.00	-26.38	H
3760.00	-37.07	7.00	12.93	-43.00	-13.00	-30.00	V
5640.00	-31.63	8.40	17.11	-40.34	-13.00	-27.34	V
7520.19	-25.78	8.10	22.20	-39.88	-13.00	-26.88	V
LTE Band 2 / 20MHz / QPSK / RB Size 1 Offset 0/ The Worst Test Results for Highest							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea	Limit	Margin	Polarity
				(dBm)	(dBm)	(dBm)	
3800.18	-36.57	7.00	12.93	-42.50	-13.00	-29.50	H
5699.85	-32.03	8.40	17.11	-40.74	-13.00	-27.74	H
7600.00	-25.45	8.10	22.20	-39.55	-13.00	-26.55	H
3800.18	-36.10	7.00	12.93	-42.03	-13.00	-29.03	V
5699.85	-32.20	8.40	17.11	-40.91	-13.00	-27.91	V
7600.00	-25.96	8.10	22.20	-40.06	-13.00	-27.06	V

LTE Band 4 / 20MHz / QPSK / RB Size 1 Offset 0/ The Worst Test Results for Lowest							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea	Limit	Margin	Polarity
				(dBm)	( dBm )	(dBm)	
3440.33	-36.42	7.20	12.56	-41.78	-13.00	-28.78	H
5160.25	-31.97	8.10	16.32	-40.19	-13.00	-27.19	H
6880.68	-25.72	8.30	21.13	-38.55	-13.00	-25.55	H
3440.33	-36.93	7.20	12.56	-42.29	-13.00	-29.29	V
5160.25	-31.54	8.10	16.32	-39.76	-13.00	-26.76	V
6880.68	-26.24	8.30	21.13	-39.07	-13.00	-26.07	V
LTE Band 4 / 20MHz / QPSK / RB Size 1 Offset 0/ The Worst Test Results for Middle							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea	Limit	Margin	Polarity
				(dBm)	( dBm )	(dBm)	
3465.04	-36.83	7.20	12.56	-42.19	-13.00	-29.19	H
5196.71	-31.64	8.10	16.32	-39.86	-13.00	-26.86	H
6929.88	-26.07	8.30	21.13	-38.90	-13.00	-25.90	H
3465.04	-36.98	7.20	12.56	-42.34	-13.00	-29.34	V
5196.71	-32.03	8.10	16.32	-40.25	-13.00	-27.25	V
6929.88	-25.98	8.30	21.13	-38.81	-13.00	-25.81	V
LTE Band 4 / 20MHz / QPSK / RB Size 1 Offset 0/ The Worst Test Results for Highest							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea	Limit	Margin	Polarity
				(dBm)	( dBm )	(dBm)	
3490.55	-37.45	7.20	12.56	-42.81	-13.00	-29.81	H
5235.15	-31.60	8.10	16.32	-39.82	-13.00	-26.82	H
6979.40	-25.73	8.30	21.13	-38.56	-13.00	-25.56	H
3490.55	-36.88	7.20	12.56	-42.24	-13.00	-29.24	V
5235.15	-32.23	8.10	16.32	-40.45	-13.00	-27.45	V
6979.40	-25.42	8.30	21.13	-38.25	-13.00	-25.25	V

LTE Band 5 / 10MHz / QPSK / RB Size 1 Offset 0/ The Worst Test Results for Lowest							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea	Limit	Margin	Polarity
				(dBm)	( dBm )	(dBm)	
1657.89	-39.46	7.40	9.72	-41.78	-13.00	-28.78	H
2486.48	-38.55	8.30	10.86	-41.11	-13.00	-28.11	H
3315.10	-36.40	7.20	11.57	-40.77	-13.00	-27.77	H
1657.89	-39.36	7.40	9.72	-41.68	-13.00	-28.68	V
2486.48	-39.28	8.30	10.86	-41.84	-13.00	-28.84	V
3315.10	-36.18	7.20	11.57	-40.55	-13.00	-27.55	V
LTE Band 5 / 10MHz / QPSK / RB Size 1 Offset 0/ The Worst Test Results for Middle							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea	Limit	Margin	Polarity
				(dBm)	( dBm )	(dBm)	
1672.20	-40.14	7.40	9.72	-42.46	-13.00	-29.46	H
2509.09	-38.49	8.30	10.86	-41.05	-13.00	-28.05	H
3345.27	-36.04	7.20	11.57	-40.41	-13.00	-27.41	H
1672.20	-40.10	7.40	9.72	-42.42	-13.00	-29.42	V
2509.09	-38.49	8.30	10.86	-41.05	-13.00	-28.05	V
3345.27	-36.32	7.20	11.57	-40.69	-13.00	-27.69	V
LTE Band 5 / 10MHz / QPSK / RB Size 1 Offset 0/ The Worst Test Results for Highest							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea	Limit	Margin	Polarity
				(dBm)	( dBm )	(dBm)	
1687.61	-39.29	7.40	9.72	-41.61	-13.00	-28.61	H
2531.52	-39.45	8.30	10.86	-42.01	-13.00	-29.01	H
3375.71	-36.07	7.20	11.57	-40.44	-13.00	-27.44	H
1687.61	-40.45	7.40	9.72	-42.77	-13.00	-29.77	V
2531.52	-38.50	8.30	10.86	-41.06	-13.00	-28.06	V
3375.71	-36.08	7.20	11.57	-40.45	-13.00	-27.45	V



LTE Band 7 / 20MHz / QPSK / RB Size 1 Offset 0/ The Worst Test Results for Lowest							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea	Limit	Margin	Polarity
				(dBm)	( dBm )	(dBm)	
5021.12	-37.68	8.00	15.86	-45.54	-25.00	-20.54	H
7530.95	-33.42	8.30	19.28	-44.40	-25.00	-19.40	H
10258.97	-28.37	8.10	23.19	-43.46	-25.00	-18.46	H
5021.12	-38.42	8.00	15.86	-46.28	-25.00	-21.28	V
7530.95	-33.19	8.30	19.28	-44.17	-25.00	-19.17	V
10258.97	-28.79	8.10	23.19	-43.88	-25.00	-18.88	V
LTE Band 7 / 20MHz / QPSK / RB Size 1 Offset 0/ The Worst Test Results for Middle							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea	Limit	Margin	Polarity
				(dBm)	( dBm )	(dBm)	
5069.64	-37.01	8.00	15.86	-44.87	-25.00	-19.87	H
7605.16	-34.25	8.30	19.28	-45.23	-25.00	-20.23	H
10139.71	-28.31	8.10	23.19	-43.40	-25.00	-18.40	H
5069.64	-37.31	8.00	15.86	-45.17	-25.00	-20.17	V
7605.16	-34.17	8.30	19.28	-45.15	-25.00	-20.15	V
10139.71	-28.49	8.10	23.19	-43.58	-25.00	-18.58	V
LTE Band 7 / 20MHz / QPSK / RB Size 1 Offset 0/ The Worst Test Results for Highest							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea	Limit	Margin	Polarity
				(dBm)	( dBm )	(dBm)	
5118.58	-38.08	8.00	15.86	-45.94	-25.00	-20.94	H
7678.42	-34.23	8.30	19.28	-45.21	-25.00	-20.21	H
10237.81	-28.02	8.10	23.19	-43.11	-25.00	-18.11	H
5118.58	-38.17	8.00	15.86	-46.03	-25.00	-21.03	V
7678.42	-34.38	8.30	19.28	-45.36	-25.00	-20.36	V
10237.81	-28.50	8.10	23.19	-43.59	-25.00	-18.59	V

※※※※※END OF THE REPORT※※※※※