

TEST REPORT



DT&C Co., Ltd.

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1. Report No : DRTFCC2009-0296(1)

2. Customer

• Name : DASAN Networks, Inc.

• Address (FCC) : DASAN Tower, 49, Daewangpangyo-ro644Beon-gil, Bundang-gu, Seongnam-si,
South Korea 13493

Address (IC) : DASAN Tower, 49, Daewangpangyo-ro644Beon-gil, Bundang-gu Seongnam-si/Gyeonggi-do
Korea (Republic Of)

3. Use of Report : FCC & IC Certification

4. Product Name / Model Name : Vehicle Control Terminal / TMS3.0 (300611-01930)

FCC ID : 2AXDMTMS30DUALTYPEB

IC : 26419-TMS30TYPEB

5. FCC Regulation(s): Part 2, 22, 24, 27

IC Standard(s): RSS-130 Issue 2, 132 Issue 3, 133 Issue 6, 139 Issue 3, 199 Issue 3

Test Method Used : KDB971168 D01v03, ANSI/TIA-603-E-2016, ANSI C63.26-2015

6. Date of Test : 2020.07.16 ~ 2020.09.18

7. Location of Test : ☒ Permanent Testing Lab ☐ On Site Testing

8. Testing Environment : Refer to appended test report.

9. Test Result : Refer to the attached test result.

The results shown in this test report refer only to the sample(s) tested unless otherwise stated.

Affirmation	Tested by	Reviewed by
	Name : JaeHyeok Bang	Name : JaeJin Lee

2020 . 10 . 22 .

DT&C Co., Ltd.

Unconnected with KS Q ISO / IEC 17025 and KOLAS accreditation.

If this report is required to confirmation of authenticity, please contact to report@dtnc.net

Test Report Version

Test Report No.	Date	Description	Revised by	Reviewed by
DRTFCC2009-0296	Sep. 23, 2020	Initial issue	JaeHyeok Bang	JaeJin Lee
DRTFCC2009-0296(1)	Oct. 22, 2020	Update the FCC ID	JaeHyeok Bang	JaeJin Lee

Table of Contents

1. GENERAL INFORMATION	4
2. INTRODUCTION	7
2.1 EUT DESCRIPTION	7
2.2 TESTING ENVIRONMENT	7
2.3 MEASURING INSTRUMENT CALIBRATION.....	7
2.4 MEASUREMENT UNCERTAINTY	7
2.5 TEST FACILITY.....	7
3. DESCRIPTION OF TESTS.....	8
3.1 ERP & EIRP (Effective Radiated Power & Equivalent Isotropic Radiated Power)	8
3.2 UNDESIRABLE EMISSIONS	10
4. LIST OF TEST EQUIPMENT	11
5. SUMMARY OF TEST RESULTS	12
6. SAMPLE CALCULATION	13
7. TEST DATA.....	14
7.1 OCCUPIED BANDWIDTH.....	14
7.2 PEAK TO AVERAGE RATIO	14
7.3 BAND EDGE EMISSIONS (Conducted).....	14
7.4 SPURIOUS AND HARMONICS EMISSIONS (Conducted)	14
7.5 ERP & EIRP	15
7.5.1 LTE Band 12.....	15
7.5.2 LTE Band 13.....	16
7.5.3 LTE Band 26.....	17
7.5.4 LTE Band 26(5)	18
7.5.5 LTE Band 4.....	19
7.5.6 LTE Band 25(2)	20
7.5.7 LTE Band 41(38)	21
7.5.8 LTE Band 7.....	22
7.6 UNDESIRABLE EMISSIONS (Radiated).....	23
7.6.1 LTE Band 12.....	23
7.6.2 LTE Band 13.....	24
7.6.3 LTE Band 26.....	25
7.6.4 LTE Band 4.....	26
7.6.5 LTE Band 25(2)	27
7.6.6 LTE Band 41(38)	28
7.6.7 LTE Band 7.....	29

1. GENERAL INFORMATION

Applicant Name : DASAN Networks, Inc.
Address(FCC) : DASAN Tower, 49, Daewangpangyo-ro644Beon-gil, Bundang-gu, Seongnam-si, South Korea 13493
Address(IC) : DASAN Tower, 49, Daewangpangyo-ro644Beon-gil, Bundang-gu Seongnam-si/Gyeonggi-do 13493 Korea (Republic Of)
FCC ID : 2AXDMTMS30DUALTYPEB
IC : 26419-TMS30TYPEB
FCC Classification : PCS Licensed Transmitter (PCB)
EUT Type : Vehicle Control Terminal
Model Name : TMS3.0 (300611-01930)
Add Model Name : NA
Hardware Version : A1
Software Version : V3.01.002
Serial Number : NA
Supplying power : DC 12 V, 24 V
Antenna Information : PCB Antenna

Note: The emission designator was reported based on the original report of certified module.

Mode	TX Frequency (MHz)	Emission Designator	Modulation	ERP(FCC&IC)		EIRP	
				Max power (dBm)	Max power (W)	Max power (dBm)	Max power (W)
LTE Band 12	704 ~ 711	8M93G7D	QPSK	17.81	0.060	-	-
LTE Band 12	704 ~ 711	8M93W7D	16QAM	16.70	0.047	-	-
LTE Band 12	701.5 ~ 713.5	4M48G7D	QPSK	17.92	0.062	-	-
LTE Band 12	701.5 ~ 713.5	4M50W7D	16QAM	16.65	0.046	-	-
LTE Band 12	700.5 ~ 714.5	2M70G7D	QPSK	18.67	0.074	-	-
LTE Band 12	700.5 ~ 714.5	2M69W7D	16QAM	17.25	0.053	-	-
LTE Band 12	699.7 ~ 715.3	1M09G7D	QPSK	19.02	0.080	-	-
LTE Band 12	699.7 ~ 715.3	1M09W7D	16QAM	17.62	0.058	-	-
LTE Band 13	782 ~ 782	8M91G7D	QPSK	23.21	0.209	-	-
LTE Band 13	782 ~ 782	8M91W7D	16QAM	21.81	0.152	-	-
LTE Band 13	779.5 ~ 784.5	4M48G7D	QPSK	22.93	0.196	-	-
LTE Band 13	779.5 ~ 784.5	4M49W7D	16QAM	22.06	0.161	-	-

Mode	TX Frequency (MHz)	Emission Designator	Modulation	ERP(For the FCC)		EIRP(For the IC)	
				Max power (dBm)	Max power (W)	Max power (dBm)	Max power (W)
LTE Band 26	831.5 ~ 841.5	13M5G7D	QPSK	23.52	0.225	25.67	0.369
LTE Band 26	831.5 ~ 841.5	13M4W7D	16QAM	22.04	0.160	24.19	0.262
LTE Band 26(5)	829 ~ 844	8M93G7D	QPSK	22.67	0.185	24.82	0.303
LTE Band 26(5)	829 ~ 844	8M93W7D	16QAM	21.21	0.132	23.36	0.217
LTE Band 26(5)	826.5 ~ 846.5	4M48G7D	QPSK	22.80	0.191	24.95	0.313
LTE Band 26(5)	826.5 ~ 846.5	4M49W7D	16QAM	21.62	0.145	23.77	0.238
LTE Band 26(5)	825.5 ~ 847.5	2M70G7D	QPSK	23.31	0.214	25.46	0.352
LTE Band 26(5)	825.5 ~ 847.5	2M69W7D	16QAM	21.67	0.147	23.82	0.241
LTE Band 26(5)	824.7 ~ 848.3	1M09G7D	QPSK	22.57	0.181	24.72	0.296
LTE Band 26(5)	824.7 ~ 848.3	1M09W7D	16QAM	21.46	0.140	23.61	0.230

Mode	TX Frequency (MHz)	Emission Designator	Modulation	EIRP(FCC & IC)	
				Max power(dBm)	Max power(W)
LTE Band 4	1 720 ~ 1 745	17M9G7D	QPSK	24.33	0.271
LTE Band 4	1 720 ~ 1 745	17M9W7D	16QAM	23.03	0.201
LTE Band 4	1 717.5 ~ 1 747.5	13M4G7D	QPSK	23.90	0.245
LTE Band 4	1 717.5 ~ 1 747.5	13M4W7D	16QAM	22.66	0.185
LTE Band 4	1 715 ~ 1 750	8M93G7D	QPSK	24.30	0.269
LTE Band 4	1 715 ~ 1 750	8M91W7D	16QAM	22.86	0.193
LTE Band 4	1 712.5 ~ 1752.5	4M48G7D	QPSK	24.27	0.267
LTE Band 4	1 712.5 ~ 1 752.5	4M49W7D	16QAM	23.29	0.213
LTE Band 4	1 711.5 ~ 1 753.5	2M70G7D	QPSK	24.24	0.265
LTE Band 4	1 711.5 ~ 1 753.5	2M69W7D	16QAM	23.19	0.208
LTE Band 4	1 710.7 ~ 1 754.3	1M10G7D	QPSK	24.24	0.265
LTE Band 4	1 710.7 ~ 1 754.3	1M09W7D	16QAM	22.92	0.196
LTE Band 25(2)	1 860 ~ 1 905	17M9G7D	QPSK	27.90	0.617
LTE Band 25(2)	1 860 ~ 1 905	17M9W7D	16QAM	26.27	0.424
LTE Band 25(2)	1 857.5 ~ 1 907.5	13M5G7D	QPSK	27.73	0.593
LTE Band 25(2)	1 857.5 ~ 1 907.5	13M4W7D	16QAM	26.54	0.451
LTE Band 25(2)	1 855 ~ 1 910	8M91G7D	QPSK	27.43	0.553
LTE Band 25(2)	1 855 ~ 1 910	8M95W7D	16QAM	26.76	0.474
LTE Band 25(2)	1 852.5 ~ 1 912.5	4M47G7D	QPSK	26.52	0.449
LTE Band 25(2)	1 852.5 ~ 1 912.5	4M49W7D	16QAM	26.30	0.427
LTE Band 25(2)	1 851.5 ~ 1 913.5	2M70G7D	QPSK	25.96	0.394
LTE Band 25(2)	1 851.5 ~ 1 913.5	2M69W7D	16QAM	24.91	0.310
LTE Band 25(2)	1 850.7 ~ 1 914.3	1M09G7D	QPSK	25.57	0.361
LTE Band 25(2)	1 850.7 ~ 1 914.3	1M09W7D	16QAM	24.32	0.270
LTE Band 41(38)	2 506 ~ 2 680	17M9G7D	QPSK	25.42	0.348
LTE Band 41(38)	2 506 ~ 2 680	17M9W7D	16QAM	23.22	0.210
LTE Band 41(38)	2 503.5 ~ 2 682.5	13M5G7D	QPSK	25.38	0.345
LTE Band 41(38)	2 503.5 ~ 2 682.5	13M5W7D	16QAM	24.20	0.263
LTE Band 41(38)	2 501 ~ 2 685	8M91G7D	QPSK	26.45	0.442
LTE Band 41(38)	2 501 ~ 2 685	8M91W7D	16QAM	24.79	0.301
LTE Band 41(38)	2 498.5 ~ 2 687.5	4M48G7D	QPSK	24.51	0.282
LTE Band 41(38)	2 498.5 ~ 2 687.5	4M50W7D	16QAM	23.58	0.228

Mode	TX Frequency (MHz)	Emission Designator	Modulation	EIRP(FCC & IC)	
				Max power(dBm)	Max power(W)
LTE Band 7	2 510 ~ 2 560	17M9G7D	QPSK	27.70	0.589
LTE Band 7	2 510 ~ 2 560	17M9W7D	16QAM	26.54	0.451
LTE Band 7	2 507.5 ~ 2 562.5	13M5G7D	QPSK	27.69	0.587
LTE Band 7	2 507.5 ~ 2 562.5	13M4W7D	16QAM	26.39	0.436
LTE Band 7	2 505 ~ 2 565	8M93G7D	QPSK	27.05	0.507
LTE Band 7	2 505 ~ 2 565	8M91W7D	16QAM	25.70	0.372
LTE Band 7	2 502.5 ~ 2 567.5	4M48G7D	QPSK	26.96	0.497
LTE Band 7	2 502.5 ~ 2 567.5	4M49W7D	16QAM	25.41	0.348

2. INTRODUCTION

2.1 EUT DESCRIPTION

This EUT contains the following capabilities:

850/1900 GPRS/EDGE, 850/1700/1900 WCDMA/HSUPA, Multi-band LTE and IRIDIUM Satellite communication.

2.2 TESTING ENVIRONMENT

Ambient Condition	
▪ Temperature	+22 °C ~ +25 °C
▪ Relative Humidity	41 % ~ 45 %

2.3 MEASURING INSTRUMENT CALIBRATION

The measuring equipment, which was utilized in performing the tests documented herein, has been calibrated in accordance with the manufacturer's recommendations for utilizing calibration equipment, which is traceable to recognized national standards.

2.4 MEASUREMENT UNCERTAINTY

The measurement uncertainties shown below were calculated in accordance with requirements of ANSI C 63.4-2014. All measurement uncertainty values are shown with a coverage factor of $k = 2$ to indicate a 95 % level of confidence.

Parameter	Measurement uncertainty
Radiated Disturbance (Below 1 GHz)	4.9 dB (The confidence level is about 95 %, $k = 2$)
Radiated Disturbance (1 GHz ~ 18 GHz)	5.1 dB (The confidence level is about 95 %, $k = 2$)
Radiated Disturbance (Above 18 GHz)	5.3 dB (The confidence level is about 95 %, $k = 2$)

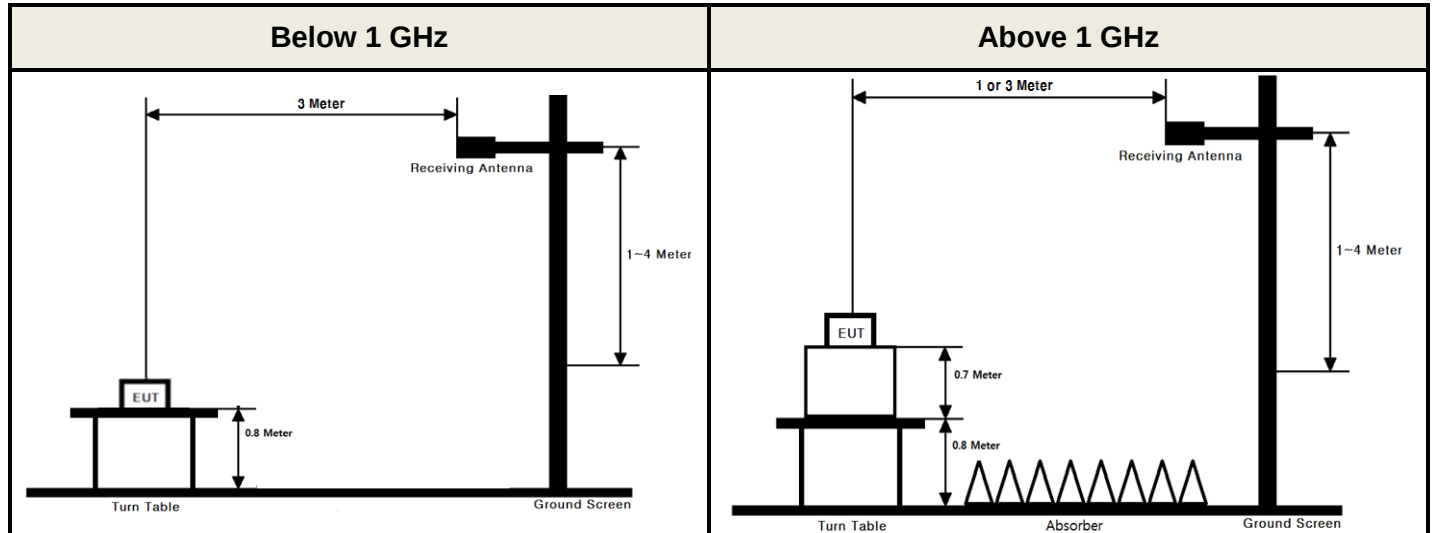
2.5 TEST FACILITY

DT&C Co., Ltd.		
The 3 m test site and conducted measurement facility used to collect the radiated data are located at the 42, Yurim-ro, 154beon-gil, Cheoin-gu, Yongin-si, Gyeonggi-do, Korea 17042.		
The test site complies with the requirements of § 2.948 according to ANSI 63.4-2014.		
- FCC & IC MRA Designation No. : KR0034		
- ISED #: 5740A		
www.dtnet.net		
Telephone	:	+ 82-31-321-2664
FAX	:	+ 82-31-321-1664

3. DESCRIPTION OF TESTS

3.1 ERP & EIRP (Effective Radiated Power & Equivalent Isotropic Radiated Power)

Test Set-up



These measurements were performed at 3 m test site. The equipment under test is placed on a non-conductive table 0.8 m or 1.5 m above a turntable which is flush with the ground plane and 3 meters from the receive antenna. For measurements above 1GHz absorbers are placed on the floor between the turn table and the antenna mast in such a way so as to maximize the reduction of reflections. For measurements below 1 GHz, the absorbers are removed.

Test Procedure

- ANSI/TIA-603-E-2016 - Section 2.2.17
- KDB971168 D01v03 - Section 5.2.2
- ANSI C63.26-2015 – Section 5.2.4.4.1

Test setting

1. Set span to 2 x to 3 x the OBW.
2. Set RBW = 1 % to 5 % of the OBW.
3. Set VBW $\geq$ 3 x RBW.
4. Set number of points in sweep $\geq$ 2 x span / RBW.
5. Sweep time:
 - 1) Set = auto-couple, or
 - 2) Set $\geq$ [10 x (number of points in sweep) x (transmission period)] for single sweep (automation-compatible) measurement. Transmission period is the on and off time of the transmitter.
6. Detector = power averaging (rms).
7. If the EUT can be configured to transmit continuously, then set the trigger to free run.
8. If the EUT cannot be configured to transmit continuously, then use a sweep trigger with the level set to enable triggering only on full power bursts and configure the EUT to transmit at full power for the entire duration of each sweep. Verify that the sweep time is less than or equal to the transmission burst duration. Time gating can also be used under similar constraints (i.e., configured such that measurement data is collected only during active full-power transmissions).
9. Trace average at least 100 traces in power averaging (rms) mode if sweep is set to auto-couple. To accurately determine the average power over multiple symbols, it can be necessary to increase the number of traces to be averaged above 100 or, if using a manually configured sweep time, increase the sweep time.

10. Compute the power by integrating the spectrum across the OBW of the signal using the instrument's band or channel power measurement function, with the band/channel limits set equal to the OBW band edges. If the instrument does not have a band or channel power function, then sum the spectrum levels (in linear power units) at intervals equal to the RBW extending across the entire OBW of the spectrum.

The receiver antenna height and turntable rotations were adjusted for the highest reading on the receive spectrum analyzer.

A half-wave dipole was substituted in place of the EUT. This dipole antenna was driven by a signal generator and the level of the signal generator was adjusted to obtain the same receive spectrum analyzer reading. The conducted power at the terminal of the substitute antenna is measured.

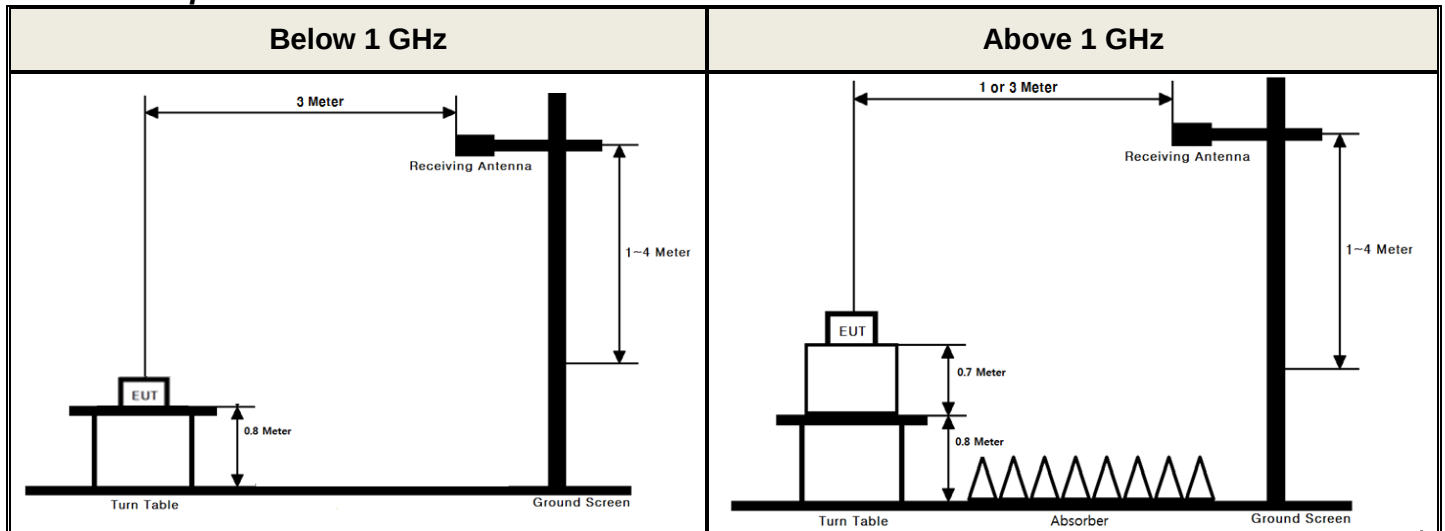
The ERP/EIRP is calculated using the following formula:

ERP/EIRP = The conducted power at the substitute antenna's terminal [dBm] + Substitute Antenna gain [dBd for ERP , dBi for EIRP]

For readings above 1 GHz, the above procedure is repeated using horn antennas and the difference between the gain of the horn antenna and an isotropic antenna are taken into consideration.

3.2 UNDESIRABLE EMISSIONS

Test Set-up



These measurements were performed at 3 test site. The equipment under test is placed on a non-conductive table 0.8 m or 1.5 m above a turntable which is flush with the ground plane and 3 meters from the receive antenna. For measurements above 1 GHz absorbers are placed on the floor between the turn table and the antenna mast in such a way so as to maximize the reduction of reflections. For measurements below 1 GHz, the absorbers are removed.

Test Procedure

- ANSI/TIA-603-E-2016 - Section 2.2.12
- KDB971168 D01v03 - Section 5.8
- ANSI C63.26-2015 – Section 5.5

Test setting

1. RBW = 100 kHz for below 1 GHz and 1 MHz for above 1 GHz / VBW $\geq 3 \times$ RBW
2. Detector = RMS & Trace mode = Max hold
3. Sweep time = Auto couple
4. Number of sweep point $\geq 2 \times$ span / RBW
5. The trace was allowed to stabilize

The receive antenna height and turntable rotations were adjusted for the highest reading on the receive spectrum analyzer.

For radiated power measurements below 1 GHz, a half-wave dipole was substituted in place of the EUT. This dipole antenna was driven by a signal generator and the level of the signal generator was adjusted to obtain the same spectrum analyzer reading.

For radiated power measurements above 1 GHz, a Horn antenna was substituted in place of the EUT. This Horn antenna was driven by a signal generator and the level of the signal generator was adjusted to obtain the same spectrum analyzer reading. The difference between the gain of the horn and an isotropic antenna are taken into consideration.

This measurement was performed with the EUT oriented in 3 orthogonal axis.

4. LIST OF TEST EQUIPMENT

Type	Manufacturer	Model	Cal.Date (yy/mm/dd)	Next.Cal. Date (yy/mm/dd)	S/N
Spectrum Analyzer	Agilent Technologies	N9020A	20/06/24	21/06/24	US47360812
Spectrum Analyzer	Agilent Technologies	N9030A	19/12/16	20/12/16	MY53310140
DC power supply	SM techno	SDP30-5D	20/06/24	21/06/24	305DNF079
Multimeter	FLUKE	17B+	19/12/16	20/12/16	36390701WS
Radio Communication Analyzer	Anritsu	MT8820C	19/12/16	20/12/16	6201274516
Thermohygrometer	BODYCOM	BJ5478	19/12/18	20/12/18	120612-2
Signal Generator	Rohde Schwarz	SMBV100A	19/12/16	20/12/16	255571
Signal Generator	ANRITSU	MG3695C	19/12/16	20/12/16	173501
Loop Antenna	ETS-Lindgren	6502	19/09/18	21/09/18	00226186
Bilog Antenna	Schwarzbeck	VULB 9160	19/04/23	21/04/23	9160-3362
Dipole Antenna	A.H.Systems Inc.	FCC-4	19/03/26	21/03/26	710A
Dipole Antenna	Schwarzbeck	UHA9105	20/04/10	22/04/10	2262
HORN ANT	ETS	3117	20/04/24	21/04/24	00140394
HORN ANT	ETS	3117	20/03/26	21/03/26	00152145
HORN ANT	A.H.Systems	SAS-574	20/06/24	21/06/24	154
HORN ANT	A.H.Systems	SAS-574	20/06/24	21/06/24	155
Amplifier	EMPOWER	BBS3Q7ELU	20/06/24	21/06/24	1020
PreAmplifier	A.H.Systems Inc.	PAM-1840VH	20/06/24	21/06/24	163
PreAmplifier	H.P	8447D	19/12/16	20/12/16	2944A07774
PreAmplifier	Agilent	8449B	20/06/24	21/06/24	3008A02108
High-pass filter	Wainwright	WHKX12-935-1000-15000-40SS	20/06/24	21/06/24	7
High-pass filter	Wainwright	WHKX10-2838-3300-18000-60SS	20/06/24	21/06/24	2
High-pass filter	Wainwright	WHNX8.5/26.5G-6SS	20/06/24	21/06/24	1
Cable	DTNC	Cable	20/01/13	21/01/13	M-01
Cable	DTNC	Cable	20/01/13	21/01/13	M-04
Cable	Junkosha	MWX315	20/01/13	21/01/13	M-05
Cable	Junkosha	MWX221	20/01/13	21/01/13	M-06

Note1: The measurement antennas were calibrated in accordance to the requirements of ANSI C63.5-2017.

Note2: The cable is not a regular calibration item, so it has been calibrated by DT & C itself.

5. SUMMARY OF TEST RESULTS

FCC Part Section(s)	RSS Section(s)	Test Description	Test Limit	Test Condition	Status Note 1
2.1046	-	Conducted Output Power	N/A	Conducted	NA Note 2
2.1049	RSS-GEN[6.7]	Occupied Bandwidth	N/A		NA Note 2
24.232(d) 27.50(d.5)	RSS-130 [4.6] RSS-132 [5.4] RSS-133 [6.4] RSS-139 [6.5] RSS-199 [4.4]	Peak to Average Ratio	< 13 dB		NA Note 2
2.1051 22.917(a) 24.238(a) 27.53(c) 27.53(g) 27.53(h)	RSS-130 [4.7] RSS-132 [5.5] RSS-133 [6.5] RSS-139 [6.6]	Band Edge / Conducted Spurious Emissions	> 43 + 10log ₁₀ (P) dB at Band edge and for all out-of-band emissions		NA Note 2
27.53(m)	RSS-199 [4.5]	Band Edge / Conducted Spurious Emissions	> 40 + 10log ₁₀ (P) dB at channel edge and 5 MHz from the channel edge > 43 + 10log ₁₀ (P) dB at 5 MHz and X MHz from the channel edge > 55 + 10log ₁₀ (P) dB at all frequencies more than X MHz from the channel edge		NA Note 2
27.53(c.4)	RSS-130 [4.7.2]	Undesirable emissions in 763 ~ 775MHz & 793 ~ 806MHz	>65 + 10 log (P) dB in a 6.25 kHz band segment frequencies between 763-775 MHz and 793-805 MHz		NA Note 2
2.1055 22.355 24.235 27.54	RSS-130 [4.5] RSS-132 [5.3] RSS-133 [6.3] RSS-139 [6.4] RSS-199 [4.3]	Frequency Stability	< 2.5 ppm (Part 22) or Fundamental emissions must stay within Authorized frequency block (Part 24, 27)		NA Note 2
27.50(b.10) 27.50(c.10)	RSS-130 [4.6]	Radiated Output Power (B12, 13)	< 3 Watts max. ERP (FCC & IC)	Radiated	C
22.913(a.5)	RSS-132 [5.4]	Radiated Output Power (B26, B5)	< 7 Watts max. ERP (FCC) < 11.5 Watts max. EIRP (IC)		C
27.50(d.4)	RSS-139 [6.5]	Radiated Output Power (B4)	< 1 Watts max. EIRP (FCC & IC)		C
24.232(c) 27.50(h.2)	RSS-133 [6.4] RSS-199 [4.4]	Radiated Output Power (B25, 2, 7, 38, 41)	< 2 Watts max. EIRP (FCC & IC)		C
2.1053 22.917(a) 24.238(a) 27.53(c) 27.53(g) 27.53(h)	RSS-130 [4.7] RSS-132 [5.5] RSS-133 [6.5] RSS-139 [6.6]	Undesirable Emissions	> 43 + 10log ₁₀ (P) dB for all out-of-band emissions		C
27.53(m)	RSS-199 [4.5]	Undesirable Emissions (B7, 38, 41)	> 55 + 10log ₁₀ (P) dB for all out-of-band emissions		C
27.53(f)	RSS-130 [4.7.2]	Undesirable Emissions in 1559 ~ 1610 MHz	< -70 dBW/MHz (for wideband signals) < -80 dBW (for discrete emissions of less than 700 Hz bandwidth)		C

Note 1: C=Comply NC=Not Comply NT=Not Tested NA=Not Applicable

Note 2: These test items were not performed because this device uses the granted module.

(FCC ID : XMR201903EG25G, IC: 10224A-201903EG25G)

Please refer to the test report of the granted module

Note 3: The radiated test items were tested at DC 12 V and DC 24 V. And the worst case data are reported.

6. SAMPLE CALCULATION

A. For substitution method

- 1) The EUT was placed on a turntable with 0.8 meter height for frequency below 1GHz and 1.5 meter height for frequency above 1 GHz respectively above ground.
- 2) The EUT was set 3 meters from the receiving antenna mounted on the antenna tower.
- 3) During the test, the turn table is rotated until the maximum signal is found.
- 4) Record the field strength meter's level. (ex. Spectrum reading level is -8.5 dBm)
- 5) Replace the EUT with dipole/Horn antenna that is connected to a calibrated signal generator.
- 6) Increase the signal generator output till the field strength meter's level is equal to the item (4).
(ex. Signal generator level is -18.04 dBm)
- 7) The gain of the cable and amplifier between the signal generator and terminals of substituted antenna is 46.92 dB at test frequency.
- 8) Record the level at substituted antenna terminal. (ex. 28.88dBm)
- 9) The result is calculated as below;

$$\text{EIRP(dBm)} = \text{LEVLE@ANTENNA TERMINAL} + \text{TX Antenna Gain (dBi)}$$

$$\text{ERP(dBm)} = \text{LEVLE@ANTENNA TERMINAL} + \text{TX Antenna Gain (dBd)}$$

$$\text{Where, TX Antenna Gain (dBd)} = \text{TX Antenna Gain (dBi)} - 2.15 \text{ dB}$$

7. TEST DATA

7.1 OCCUPIED BANDWIDTH

- Not Applicable

7.2 PEAK TO AVERAGE RATIO

- Not Applicable

7.3 BAND EDEG EMISSIONS (Conducted)

- Not Applicable

7.4 SPURIOUS AND HARMONICS EMISSIONS (Conducted)

- Not Applicable

7.5 ERP & EIRP

- Test Notes

- 1) This device was tested under all bandwidths, modulations and RB configurations and the worst case data are reported in the below table.

7.5.1 LTE Band 12

<DC 12 V>

Channel Bandwidth (MHz)	Test Frequency (MHz)	Test Mode	RB Size/ Offset	Ant Pol (H/V)	Level(dBm) @ Ant Terminal	TX Ant Gain (dBd)	ERP (dBm)	ERP (W)
10	704	QPSK	1/49	H	18.45	-0.65	17.80	0.060
		16QAM	1/49	H	16.60	-0.65	15.95	0.039
	711	QPSK	1/49	H	18.44	-0.63	17.81	0.060
		16QAM	1/49	H	17.33	-0.63	16.70	0.047
5	701.5	QPSK	1/24	H	17.09	-0.66	16.43	0.044
		16QAM	1/24	H	16.83	-0.66	16.17	0.041
	707.5	QPSK	1/12	H	18.20	-0.64	17.56	0.057
		16QAM	1/12	H	16.53	-0.64	15.89	0.039
	713.5	QPSK	1/12	H	18.54	-0.62	17.92	0.062
		16QAM	1/12	H	17.27	-0.62	16.65	0.046
3	700.5	QPSK	1/0	H	17.44	-0.66	16.78	0.048
		16QAM	1/0	H	16.25	-0.66	15.59	0.036
	707.5	QPSK	1/7	H	18.42	-0.64	17.78	0.060
		16QAM	1/7	H	16.94	-0.64	16.30	0.043
	714.5	QPSK	1/14	H	19.29	-0.62	18.67	0.074
		16QAM	1/14	H	17.87	-0.62	17.25	0.053
1.4	699.7	QPSK	1/0	H	17.97	-0.66	17.31	0.054
		16QAM	1/0	H	16.38	-0.66	15.72	0.037
	707.5	QPSK	1/2	H	18.23	-0.64	17.59	0.057
		16QAM	1/2	H	16.90	-0.64	16.26	0.042
	715.3	QPSK	1/2	H	19.64	-0.62	19.02	0.080
		16QAM	1/2	H	18.24	-0.62	17.62	0.058

<DC 24 V>

Channel Bandwidth (MHz)	Test Frequency (MHz)	Test Mode	RB Size/ Offset	Ant Pol (H/V)	Level(dBm) @ Ant Terminal	TX Ant Gain (dBd)	ERP (dBm)	ERP (W)
1.4	715.3	QPSK	1/2	H	19.46	-0.62	18.84	0.077
		16QAM	1/2	H	18.29	-0.62	17.67	0.058

7.5.2 LTE Band 13

<DC 12 V>

Channel Bandwidth (MHz)	Test Frequency (MHz)	Test Mode	RB Size/ Offset	Ant Pol (H/V)	Level(dBm) @ Ant Terminal	TX Ant Gain (dBd)	ERP (dBm)	ERP (W)
10	782	QPSK	1/0	H	23.66	-0.45	23.21	0.209
		16QAM	1/0	H	22.26	-0.45	21.81	0.152
5	779.5	QPSK	1/12	H	23.01	-0.45	22.56	0.180
		16QAM	1/12	H	22.51	-0.45	22.06	0.161
	784.5	QPSK	1/0	H	23.37	-0.44	22.93	0.196
		16QAM	1/0	H	22.04	-0.44	21.60	0.145

<DC 24 V>

Channel Bandwidth (MHz)	Test Frequency (MHz)	Test Mode	RB Size/ Offset	Ant Pol (H/V)	Level(dBm) @ Ant Terminal	TX Ant Gain (dBd)	ERP (dBm)	ERP (W)
10	782	QPSK	1/0	H	23.33	-0.45	22.88	0.194
		16QAM	1/0	H	21.54	-0.45	21.09	0.129

7.5.3 LTE Band 26

<DC 12 V>

Channel Bandwidth (MHz)	Test Frequency (MHz)	Test Mode	RB Size/ Offset	Ant Pol (H/V)	Level(dBm) @ Ant Terminal	TX Ant Gain (dBd)	ERP (dBm)	ERP (W)
15	831.5	QPSK	1/0	H	24.21	-0.69	23.52	0.225
		16QAM	1/0	H	22.73	-0.69	22.04	0.160
	841.5	QPSK	1/0	H	23.68	-0.79	22.89	0.195
		16QAM	1/0	H	22.43	-0.79	21.64	0.146

<DC 24 V>

Channel Bandwidth (MHz)	Test Frequency (MHz)	Test Mode	RB Size/ Offset	Ant Pol (H/V)	Level(dBm) @ Ant Terminal	TX Ant Gain (dBd)	ERP (dBm)	ERP (W)
15	831.5	QPSK	1/0	H	24.16	-0.69	23.47	0.222
		16QAM	1/0	H	22.48	-0.69	21.79	0.151

7.5.4 LTE Band 26(5)

<DC 12 V>

Channel Bandwidth (MHz)	Test Frequency (MHz)	Test Mode	RB Size/ Offset	Ant Pol (H/V)	Level(dBm) @ Ant Terminal	TX Ant Gain (dBd)	ERP (dBm)	ERP (W)
10	829	QPSK	1/0	H	23.34	-0.67	22.67	0.185
		16QAM	1/0	H	21.71	-0.67	21.04	0.127
	836.5	QPSK	1/0	H	23.21	-0.74	22.47	0.177
		16QAM	1/0	H	21.74	-0.74	21.00	0.126
	844	QPSK	1/49	H	23.43	-0.81	22.62	0.183
		16QAM	1/49	H	22.02	-0.81	21.21	0.132
5	826.5	QPSK	1/12	H	22.97	-0.65	22.32	0.171
		16QAM	1/12	H	21.66	-0.65	21.01	0.126
	836.5	QPSK	1/0	H	22.90	-0.74	22.16	0.164
		16QAM	1/0	H	22.36	-0.74	21.62	0.145
	846.5	QPSK	1/24	H	23.63	-0.83	22.80	0.191
		16QAM	1/24	H	22.27	-0.83	21.44	0.139
3	825.5	QPSK	1/7	H	22.69	-0.64	22.05	0.160
		16QAM	1/7	H	21.00	-0.64	20.36	0.109
	836.5	QPSK	1/0	H	22.70	-0.74	21.96	0.157
		16QAM	1/0	H	21.36	-0.74	20.62	0.115
	847.5	QPSK	1/7	H	24.15	-0.84	23.31	0.214
		16QAM	1/7	H	22.51	-0.84	21.67	0.147
1.4	824.7	QPSK	1/5	H	21.96	-0.63	21.33	0.136
		16QAM	1/5	H	20.70	-0.63	20.07	0.102
	836.5	QPSK	1/0	H	23.31	-0.74	22.57	0.181
		16QAM	1/0	H	22.20	-0.74	21.46	0.140
	848.3	QPSK	1/5	H	23.27	-0.85	22.42	0.175
		16QAM	1/5	H	22.05	-0.85	21.20	0.132

7.5.5 LTE Band 4

<DC 12 V>

Channel Bandwidth (MHz)	Test Frequency (MHz)	Test Mode	RB Size/ Offset	Ant Pol (H/V)	Level(dBm) @ Ant Terminal	TX Ant Gain (dBi)	EIRP (dBm)	EIRP (W)
20	1 720	QPSK	1/50	V	16.99	5.28	22.27	0.169
		16QAM	1/50	V	15.56	5.28	20.84	0.121
	1 732.5	QPSK	1/50	V	17.66	5.33	22.99	0.199
		16QAM	1/50	V	16.79	5.33	22.12	0.163
	1 745	QPSK	1/50	V	18.95	5.38	24.33	0.271
		16QAM	1/50	V	16.17	5.38	21.55	0.143
15	1 717.5	QPSK	1/36	V	16.64	5.27	21.91	0.155
		16QAM	1/36	V	15.61	5.27	20.88	0.122
	1 732.5	QPSK	1/36	V	17.37	5.33	22.70	0.186
		16QAM	1/36	V	16.25	5.33	21.58	0.144
	1 747.5	QPSK	1/36	V	18.51	5.39	23.90	0.245
		16QAM	1/36	V	17.27	5.39	22.66	0.185
10	1 715	QPSK	1/25	V	16.97	5.26	22.23	0.167
		16QAM	1/25	V	15.90	5.26	21.16	0.131
	1 732.5	QPSK	1/25	V	16.64	5.33	21.97	0.157
		16QAM	1/25	V	16.13	5.33	21.46	0.140
	1 750	QPSK	1/0	V	18.90	5.40	24.30	0.269
		16QAM	1/0	V	17.46	5.40	22.86	0.193
5	1 712.5	QPSK	1/12	V	16.49	5.25	21.74	0.149
		16QAM	1/12	V	15.09	5.25	20.34	0.108
	1 732.5	QPSK	1/24	V	17.45	5.33	22.78	0.190
		16QAM	1/24	V	16.72	5.33	22.05	0.160
	1 752.5	QPSK	1/12	V	18.89	5.38	24.27	0.267
		16QAM	1/12	V	17.91	5.38	23.29	0.213
3	1 711.5	QPSK	1/14	V	16.38	5.25	21.63	0.146
		16QAM	1/14	V	14.93	5.25	20.18	0.104
	1 732.5	QPSK	1/7	V	17.40	5.33	22.73	0.187
		16QAM	1/7	V	16.77	5.33	22.10	0.162
	1 753.5	QPSK	1/0	V	18.87	5.37	24.24	0.265
		16QAM	1/0	V	17.82	5.37	23.19	0.208
1.4	1 710.7	QPSK	1/2	V	16.75	5.24	21.99	0.158
		16QAM	1/2	V	15.04	5.24	20.28	0.107
	1 732.5	QPSK	1/2	V	17.78	5.33	23.11	0.205
		16QAM	1/2	V	16.45	5.33	21.78	0.151
	1 754.3	QPSK	1/2	V	18.88	5.36	24.24	0.265
		16QAM	1/2	V	17.56	5.36	22.92	0.196

<DC 24 V>

Channel Bandwidth (MHz)	Test Frequency (MHz)	Test Mode	RB Size/ Offset	Ant Pol (H/V)	Level(dBm) @ Ant Terminal	TX Ant Gain (dBi)	EIRP (dBm)	EIRP (W)
20	1 745	QPSK	1/50	V	18.62	5.38	24.00	0.251
		16QAM	1/50	V	17.65	5.38	23.03	0.201

7.5.6 LTE Band 25(2)

<DC 12 V>

Channel Bandwidth (MHz)	Test Frequency (MHz)	Test Mode	RB Size/ Offset	Ant Pol (H/V)	Level(dBm) @ Ant Terminal	TX Ant Gain (dBi)	EIRP (dBm)	EIRP (W)
20	1 860	QPSK	1/50	V	22.27	4.80	27.07	0.509
		16QAM	1/50	V	21.07	4.80	25.87	0.386
	1 882.5	QPSK	1/0	V	22.39	4.58	26.97	0.498
		16QAM	1/0	V	21.62	4.58	26.20	0.417
	1 905	QPSK	1/50	V	23.48	4.42	27.90	0.617
		16QAM	1/50	V	21.85	4.42	26.27	0.424
15	1 857.5	QPSK	1/0	V	22.04	4.83	26.87	0.486
		16QAM	1/0	V	21.46	4.83	26.29	0.426
	1 882.5	QPSK	1/0	V	22.67	4.58	27.25	0.531
		16QAM	1/0	V	21.68	4.58	26.26	0.423
	1 907.5	QPSK	1/36	V	23.30	4.43	27.73	0.593
		16QAM	1/36	V	22.11	4.43	26.54	0.451
10	1 855	QPSK	1/0	V	21.45	4.85	26.30	0.427
		16QAM	1/0	V	20.05	4.85	24.90	0.309
	1 882.5	QPSK	1/0	V	21.95	4.58	26.53	0.450
		16QAM	1/0	V	20.93	4.58	25.51	0.356
	1 910	QPSK	1/0	V	22.99	4.44	27.43	0.553
		16QAM	1/0	V	22.32	4.44	26.76	0.474
5	1 852.5	QPSK	1/0	V	20.99	4.88	25.87	0.386
		16QAM	1/0	V	19.92	4.88	24.80	0.302
	1 882.5	QPSK	1/0	V	22.27	4.58	26.85	0.484
		16QAM	1/0	V	20.77	4.58	25.35	0.343
	1 912.5	QPSK	1/0	V	22.07	4.45	26.52	0.449
		16QAM	1/0	V	21.85	4.45	26.30	0.427
3	1 851.5	QPSK	1/0	V	19.95	4.89	24.84	0.305
		16QAM	1/0	V	18.72	4.89	23.61	0.230
	1 882.5	QPSK	1/14	V	21.38	4.58	25.96	0.394
		16QAM	1/14	V	20.31	4.58	24.89	0.308
	1 913.5	QPSK	1/0	V	21.76	4.45	26.21	0.418
		16QAM	1/0	V	20.46	4.45	24.91	0.310
1.4	1 850.7	QPSK	1/0	V	20.19	4.89	25.08	0.322
		16QAM	1/0	V	18.85	4.89	23.74	0.237
	1 882.5	QPSK	1/5	V	20.99	4.58	25.57	0.361
		16QAM	1/5	V	19.74	4.58	24.32	0.270
	1 914.3	QPSK	1/0	V	22.79	4.46	27.25	0.531
		16QAM	1/0	V	20.64	4.46	25.10	0.324

<DC 24 V>

Channel Bandwidth (MHz)	Test Frequency (MHz)	Test Mode	RB Size/ Offset	Ant Pol (H/V)	Level(dBm) @ Ant Terminal	TX Ant Gain (dBi)	EIRP (dBm)	EIRP (W)
20	1 905	QPSK	1/50	V	23.10	4.42	27.52	0.565
		16QAM	1/50	V	21.47	4.42	25.89	0.388

7.5.7 LTE Band 41(38)

<DC 12 V>

Channel Bandwidth (MHz)	Test Frequency (MHz)	Test Mode	RB Size/ Offset	Ant Pol (H/V)	Level(dBm) @ Ant Terminal	TX Ant Gain (dBi)	EIRP (dBm)	EIRP (W)
20	2 506	QPSK	1/99	V	19.50	5.92	25.42	0.348
		16QAM	1/99	V	17.30	5.92	23.22	0.210
	2 593	QPSK	1/99	V	18.12	6.19	24.31	0.270
		16QAM	1/99	V	16.25	6.19	22.44	0.175
	2 680	QPSK	1/99	V	17.85	6.34	24.19	0.262
		16QAM	1/99	V	16.34	6.34	22.68	0.185
15	2 503.5	QPSK	1/74	V	19.47	5.91	25.38	0.345
		16QAM	1/74	V	18.29	5.91	24.20	0.263
	2 593	QPSK	1/74	V	17.94	6.19	24.13	0.259
		16QAM	1/74	V	17.26	6.19	23.45	0.221
	2 682.5	QPSK	1/74	V	17.25	6.33	23.58	0.228
		16QAM	1/74	V	16.27	6.33	22.60	0.182
10	2 501	QPSK	1/49	V	18.88	5.90	24.78	0.301
		16QAM	1/49	V	17.68	5.90	23.58	0.228
	2 593	QPSK	1/49	V	19.84	6.19	26.03	0.401
		16QAM	1/49	V	18.46	6.19	24.65	0.292
	2 685	QPSK	1/49	V	18.21	6.32	24.53	0.284
		16QAM	1/49	V	17.33	6.32	23.65	0.232
5	2 498.5	QPSK	1/24	V	18.38	5.89	24.27	0.267
		16QAM	1/24	V	17.01	5.89	22.90	0.195
	2 593	QPSK	1/24	V	18.32	6.19	24.51	0.282
		16QAM	1/24	V	17.11	6.19	23.30	0.214
	2 687.5	QPSK	1/24	V	18.05	6.31	24.36	0.273
		16QAM	1/24	V	17.27	6.31	23.58	0.228

<DC 24 V>

Channel Bandwidth (MHz)	Test Frequency (MHz)	Test Mode	RB Size/ Offset	Ant Pol (H/V)	Level(dBm) @ Ant Terminal	TX Ant Gain (dBi)	EIRP (dBm)	EIRP (W)
10	2 593	QPSK	1/49	V	20.26	6.19	26.45	0.442
		16QAM	1/49	V	18.60	6.19	24.79	0.301

7.5.8 LTE Band 7

<DC 12 V>

Channel Bandwidth (MHz)	Test Frequency (MHz)	Test Mode	RB Size/ Offset	Ant Pol (H/V)	Level(dBm) @ Ant Terminal	TX Ant Gain (dBi)	EIRP (dBm)	EIRP (W)
20	2 510	QPSK	1/50	V	20.51	5.94	26.45	0.442
		16QAM	1/50	V	19.31	5.94	25.25	0.335
	2 535	QPSK	1/0	V	20.44	6.04	26.48	0.445
		16QAM	1/0	V	18.97	6.04	25.01	0.317
	2 560	QPSK	1/0	V	21.58	6.12	27.70	0.589
		16QAM	1/0	V	19.76	6.12	25.88	0.387
15	2 507.5	QPSK	1/36	V	20.68	5.93	26.61	0.458
		16QAM	1/36	V	19.36	5.93	25.29	0.338
	2 535	QPSK	1/74	V	20.75	6.04	26.79	0.478
		16QAM	1/74	V	19.17	6.04	25.21	0.332
	2 562.5	QPSK	1/0	V	21.56	6.13	27.69	0.587
		16QAM	1/0	V	20.26	6.13	26.39	0.436
10	2 505	QPSK	1/25	V	20.51	5.92	26.43	0.440
		16QAM	1/25	V	19.56	5.92	25.48	0.353
	2 535	QPSK	1/0	V	20.75	6.04	26.79	0.478
		16QAM	1/0	V	19.07	6.04	25.11	0.324
	2 565	QPSK	1/0	V	20.92	6.13	27.05	0.507
		16QAM	1/0	V	19.57	6.13	25.70	0.372
5	2 502.5	QPSK	1/12	V	20.44	5.91	26.35	0.432
		16QAM	1/12	V	19.07	5.91	24.98	0.315
	2 535	QPSK	1/24	V	20.62	6.04	26.66	0.463
		16QAM	1/24	V	19.34	6.04	25.38	0.345
	2 567.5	QPSK	1/12	V	20.82	6.14	26.96	0.497
		16QAM	1/12	V	19.27	6.14	25.41	0.348

<DC 24 V>

Channel Bandwidth (MHz)	Test Frequency (MHz)	Test Mode	RB Size/ Offset	Ant Pol (H/V)	Level(dBm) @ Ant Terminal	TX Ant Gain (dBi)	EIRP (dBm)	EIRP (W)
20	2 560	QPSK	1/0	V	21.38	6.12	27.50	0.562
		16QAM	1/0	V	20.42	6.12	26.54	0.451

7.6 UNDESIRABLE EMISSIONS (Radiated)

- Test Notes

- 1) This device was tested under all bandwidths, modulations and RB configurations and the worst case data are reported.
- 2) The frequency spectrum is examined from 9 kHz to the 10th harmonic of the fundamental frequency of the transmitter. No other spurious and harmonic emissions were reported greater than listed emissions.
- 3) Limit Calculation for Band 2/4/5/12/13/25/26 = $43 + 10 \log_{10} (P[\text{Watts}])$
- 4) Limit Calculation for Band 7/38/41 = $55 + 10 \log_{10} (P[\text{Watts}])$
- 5) Limit Calculation for 1 559 MHz ~ 1 610 MHz in Band 13 = -70 dBW/MHz (equivalent isotropically radiated power for wideband signals)

7.6.1 LTE Band 12

<DC 12 V>

B.W (MHz)	Test Freq. (MHz)	RB Size/ Offset	Test Mode	Freq.(MHz)	Ant Pol (H/V)	Level(dBm) @ Ant Terminal	TX Ant Gain(dBd)	Result		Limit (dBc)
								(dBm)	(dBc)	
10	704	1/49	QPSK	1 416.70	V	-62.10	2.52	-59.58	77.38	30.80
				2 125.06	V	-60.01	3.15	-56.86	74.66	
				3 542.05	V	-63.16	5.92	-57.24	75.04	
				4 250.49	H	-61.52	6.95	-54.57	72.37	
			16QAM	1 430.77	V	-57.57	2.57	-55.00	72.81	30.81
				2 146.21	V	-59.94	3.23	-56.71	74.52	
				3 577.01	V	-61.86	5.95	-55.91	73.72	
				4 292.55	H	-60.23	6.95	-53.28	71.09	
	711	1/49	QPSK	1 416.81	V	-62.87	2.52	-60.35	76.30	28.95
				2 125.18	V	-60.94	3.15	-57.79	73.74	
				3 541.85	V	-64.15	5.92	-58.23	74.18	
				4 250.26	H	-62.88	6.95	-55.93	71.88	
			16QAM	1 430.67	V	-59.08	2.57	-56.51	73.21	29.70
				2 146.21	V	-61.14	3.23	-57.91	74.61	
				3 577.07	V	-62.88	5.95	-56.93	73.63	
				4 292.54	H	-61.70	6.95	-54.75	71.45	
1.4	715.3	1/2	QPSK	1 430.27	V	-56.99	2.57	-54.42	73.44	32.02
				2 145.74	V	-58.78	3.23	-55.55	74.57	
				3 576.19	V	-61.75	5.95	-55.80	74.82	
				4 291.24	H	-59.78	6.95	-52.83	71.85	
			16QAM	1 430.34	V	-58.51	2.57	-55.94	73.56	30.62
				2 145.86	V	-60.73	3.23	-57.50	75.12	
				3 576.08	V	-63.00	5.95	-57.05	74.67	
				4 291.19	H	-61.15	6.95	-54.20	71.82	

<DC 24 V>

B.W (MHz)	Test Freq. (MHz)	RB Size/ Offset	Test Mode	Freq.(MHz)	Ant Pol (H/V)	Level(dBm) @ Ant Terminal	TX Ant Gain(dBd)	Result		Limit (dBc)
								(dBm)	(dBc)	
1.4	715.3	1/2	QPSK	1 430.37	V	-57.11	2.57	-54.54	73.38	31.84
				2 145.72	V	-59.04	3.23	-55.81	74.65	
				3 278.60	V	-64.59	5.21	-59.38	78.22	
				4 290.79	H	-63.31	6.95	-56.36	75.20	

7.6.2 LTE Band 13

<DC 12 V>

B.W (MHz)	Test Freq. (MHz)	RB Size/ Offset	Test Mode	Freq.(MHz)	Ant Pol (H/V)	Level(dBm) @ Ant Terminal	TX Ant Gain(dBd)	Result		Limit (dBc)
								(dBm)	(dBc)	
10	782	1/0	QPSK	2 332.85	V	-62.37	3.62	-58.75	81.96	36.21
				3 110.46	H	-62.71	4.97	-57.74	80.95	
				3 887.89	V	-59.43	6.43	-53.00	76.21	
				5 443.28	H	-60.28	8.34	-51.94	75.15	
10	782	1/0	16QAM	2 339.30	V	-62.76	3.63	-59.13	80.94	34.81
				3 110.19	H	-63.85	4.97	-58.88	80.69	
				3 887.97	V	-60.69	6.43	-54.26	76.07	
				5 443.14	H	-60.92	8.34	-52.58	74.39	

UNDESIRABLE EMISSIONS IN 1 559 MHz ~ 1 610 MHz (LTE Band 13)

B.W (MHz)	Test Freq. (MHz)	RB Size/ Offset	Test Mode	Freq.(MHz)	Ant Pol (H/V)	Level(dBm) @ Ant Terminal	TX Ant Gain(dBi)	Result	Margin	Limit (dBm/MHz)
								(dBm)	(dB)	
10	782	1/25	QPSK	1 568.12	H	-56.01	6.44	-49.57	9.57	-40.00
		1/25	16QAM	1 568.17	H	-57.14	6.45	-50.69	10.69	

<DC 24 V>

B.W (MHz)	Test Freq. (MHz)	RB Size/ Offset	Test Mode	Freq.(MHz)	Ant Pol (H/V)	Level(dBm) @ Ant Terminal	TX Ant Gain(dBd)	Result		Limit (dBc)
								(dBm)	(dBc)	
10	782	1/0	QPSK	2 332.32	V	-62.85	3.61	-59.24	82.12	35.88
				3 110.66	H	-63.08	4.97	-58.11	80.99	
				3 887.99	V	-59.79	6.43	-53.36	76.24	
				5 443.25	H	-61.79	8.34	-53.45	76.33	

UNDESIRABLE EMISSIONS IN 1 559 MHz ~ 1 610 MHz (LTE Band 13)

B.W (MHz)	Test Freq. (MHz)	RB Size/ Offset	Test Mode	Freq.(MHz)	Ant Pol (H/V)	Level(dBm) @ Ant Terminal	TX Ant Gain(dBi)	Result	Margin	Limit (dBm/MHz)
								(dBm)	(dB)	
10	782	1/25	QPSK	1 568.16	H	-56.28	6.45	-49.83	9.83	-40.00
		1/25	16QAM	1 568.01	H	-57.43	6.44	-50.99	10.99	

7.6.3 LTE Band 26

<DC 12 V>

B.W (MHz)	Test Freq. (MHz)	RB Size/ Offset	Test Mode	Freq.(MHz)	Ant Pol (H/V)	Level(dBm) @ Ant Terminal	TX Ant Gain(dBd)	Result		Limit (dBc)
								(dBm)	(dBc)	
15	831.5	1/0	QPSK	1 649.70	V	-55.38	4.15	-51.23	74.75	36.52
				2 490.25	V	-62.38	3.69	-58.69	82.21	
				3 299.33	V	-58.13	5.25	-52.88	76.40	
				4 124.17	H	-53.62	6.80	-46.82	70.34	
				4 949.18	H	-57.59	7.85	-49.74	73.26	
			16QAM	5 773.83	H	-61.28	8.40	-52.88	76.40	35.04
				1 649.65	V	-56.81	4.15	-52.66	74.70	
				2 483.88	V	-62.69	3.65	-59.04	81.08	
				3 299.48	V	-58.58	5.25	-53.33	75.37	
				4 124.17	H	-55.70	6.80	-48.90	70.94	
	841.5	1/0	QPSK	4 949.05	H	-59.10	7.85	-51.25	73.29	35.89
				5 773.66	H	-61.76	8.40	-53.36	75.40	
				1 669.80	V	-56.59	3.71	-52.88	75.77	
				2 492.39	V	-60.10	3.70	-56.40	79.29	
				3 339.50	V	-59.12	5.41	-53.71	76.60	
			16QAM	4 174.27	H	-55.32	6.95	-48.37	71.26	34.64
				5 008.87	H	-57.35	8.07	-49.28	72.17	
				5 843.97	H	-62.25	8.44	-53.81	76.70	
				1 669.50	V	-58.10	3.72	-54.38	76.02	
				2 495.93	V	-59.86	3.73	-56.13	77.77	
			16QAM	3 339.62	V	-60.80	5.41	-55.39	77.03	
				4 174.27	H	-57.13	6.95	-50.18	71.82	
				5 009.06	H	-59.39	8.07	-51.32	72.96	
				5 844.06	H	-62.48	8.44	-54.04	75.68	

<DC 24 V>

B.W (MHz)	Test Freq. (MHz)	RB Size/ Offset	Test Mode	Freq.(MHz)	Ant Pol (H/V)	Level(dBm) @ Ant Terminal	TX Ant Gain(dBd)	Result		Limit (dBc)
								(dBm)	(dBc)	
15	831.5	1/0	QPSK	1 649.66	V	-57.45	4.15	-53.30	76.77	36.47
				2 490.66	V	-59.04	3.69	-55.35	78.82	
				3 299.44	V	-59.87	5.25	-54.62	78.09	
				4 124.27	H	-57.74	6.80	-50.94	74.41	
				4 949.16	H	-57.85	7.85	-50.00	73.47	
				5 773.84	H	-61.00	8.40	-52.60	76.07	

7.6.4 LTE Band 4

<DC 12 V>

B.W (MHz)	Test Freq. (MHz)	RB Size/ Offset	Test Mode	Freq.(MHz)	Ant Pol (H/V)	Level(dBm) @ Ant Terminal	TX Ant Gain(dBi)	Result		Limit (dBc)
								(dBm)	(dBc)	
20	1 720	1/50	QPSK	3 440.04	V	-64.18	7.78	-56.40	78.67	35.27
				5 160.20	H	-51.79	10.32	-41.47	63.74	
				6 880.37	V	-47.11	11.30	-35.81	58.08	
				8 600.46	H	-55.26	13.20	-42.06	64.33	
			16QAM	3 440.40	V	-64.34	7.78	-56.56	77.40	33.84
				5 160.43	H	-53.42	10.32	-43.10	63.94	
				6 880.32	V	-49.04	11.30	-37.74	58.58	
				8 600.31	H	-56.52	13.20	-43.32	64.16	
	1 732.5	1/50	QPSK	3 465.43	V	-62.61	7.83	-54.78	77.77	35.99
				5 197.90	H	-47.38	10.40	-36.98	59.97	
				6 930.31	V	-42.34	11.36	-30.98	53.97	
				8 662.88	H	-51.27	13.20	-38.07	61.06	
			16QAM	3 465.09	V	-63.40	7.83	-55.57	77.69	35.12
				5 197.65	H	-48.16	10.40	-37.76	59.88	
				6 930.31	V	-43.23	11.36	-31.87	53.99	
				8 663.01	H	-52.57	13.20	-39.37	61.49	
	1 745	1/50	QPSK	3 490.08	V	-63.98	7.88	-56.10	80.43	37.33
				5 235.43	H	-50.89	10.33	-40.56	64.89	
				6 980.49	V	-44.04	11.46	-32.58	56.91	
				8 725.43	H	-53.16	13.30	-39.86	64.19	
			16QAM	3 490.30	V	-64.30	7.88	-56.42	77.97	34.55
				5 235.15	H	-52.46	10.33	-42.13	63.68	
				6 980.38	V	-45.74	11.46	-34.28	55.83	
				8 725.30	H	-54.59	13.30	-41.29	62.84	

<DC 24 V>

B.W (MHz)	Test Freq. (MHz)	RB Size/ Offset	Test Mode	Freq.(MHz)	Ant Pol (H/V)	Level(dBm) @ Ant Terminal	TX Ant Gain(dBi)	Result		Limit (dBc)
								(dBm)	(dBc)	
20	1 745	1/50	QPSK	3 490.44	V	-64.60	7.88	-56.72	80.72	37.00
				5 235.25	H	-57.70	10.33	-47.37	71.37	
				6 980.37	V	-41.82	11.46	-30.36	54.36	
				8 724.23	H	-52.51	13.30	-39.21	63.21	

7.6.5 LTE Band 25(2)

<DC 12 V>

B.W (MHz)	Test Freq. (MHz)	RB Size/ Offset	Test Mode	Freq.(MHz)	Ant Pol (H/V)	Level(dBm) @ Ant Terminal	TX Ant Gain(dBi)	Result		Limit (dBc)
								(dBm)	(dBc)	
20	1 860	1/50	QPSK	3 720.39	V	-62.89	8.34	-54.55	81.62	40.07
				5 580.30	V	-52.44	10.68	-41.76	68.83	
				7 440.33	H	-38.45	12.00	-26.45	53.52	
				9 300.35	V	-51.56	13.20	-38.36	65.43	
			16QAM	3 720.11	V	-63.44	8.34	-55.10	80.97	38.87
				5 580.44	V	-52.30	10.68	-41.62	67.49	
				7 440.40	H	-45.68	12.00	-33.68	59.55	
				9 300.45	V	-52.93	13.20	-39.73	65.60	
	1 882.5	1/0	QPSK	3 747.02	V	-62.25	8.39	-53.86	80.83	39.97
				5 620.76	V	-53.88	10.76	-43.12	70.09	
				7 494.32	H	-38.50	12.09	-26.41	53.38	
				9 367.91	V	-50.66	13.20	-37.46	64.43	
			16QAM	3 747.05	V	-62.11	8.39	-53.72	79.92	39.20
				5 620.75	V	-53.72	10.76	-42.96	69.16	
				7 494.25	H	-42.18	12.09	-30.09	56.29	
				9 367.76	V	-52.16	13.20	-38.96	65.16	
	1 905	1/50	QPSK	3 810.25	V	-60.95	8.50	-52.45	80.35	40.90
				5 715.19	V	-51.16	10.60	-40.56	68.46	
				7 620.44	H	-37.86	12.20	-25.66	53.56	
				9 525.39	V	-49.76	13.30	-36.46	64.36	
			16QAM	3 810.15	V	-61.23	8.50	-52.73	79.00	39.27
				5 715.24	V	-49.21	10.60	-38.61	64.88	
				7 620.36	H	-45.64	12.20	-33.44	59.71	
				9 525.37	V	-51.70	13.30	-38.40	64.67	

<DC 24 V>

B.W (MHz)	Test Freq. (MHz)	RB Size/ Offset	Test Mode	Freq.(MHz)	Ant Pol (H/V)	Level(dBm) @ Ant Terminal	TX Ant Gain(dBi)	Result		Limit (dBc)
								(dBm)	(dBc)	
20	1 905	1/50	QPSK	3 810.15	V	-61.56	8.50	-53.06	80.58	40.52
				5 715.41	V	-51.41	10.60	-40.81	68.33	
				7 620.34	H	-43.07	12.20	-30.87	58.39	
				9 525.37	V	-48.64	13.30	-35.34	62.86	

7.6.6 LTE Band 41(38)

<DC 12 V>

B.W (MHz)	Test Freq. (MHz)	RB Size/ Offset	Test Mode	Freq.(MHz)	Ant Pol (H/V)	Level(dBm) @ Ant Terminal	TX Ant Gain(dBi)	Result		Limit (dBc)
								(dBm)	(dBc)	
20	2 506	1/99	QPSK	5 030.01	V	-59.66	10.26	-49.40	74.82	50.42
				7 544.81	H	-44.41	12.19	-32.22	57.64	
				10 059.54	H	-47.82	13.10	-34.72	60.14	
		16QAM	16QAM	5 029.68	V	-59.91	10.26	-49.65	72.87	48.22
				7 544.68	H	-46.90	12.19	-34.71	57.93	
				10 059.62	H	-48.90	13.10	-35.80	59.02	
	2 593	1/99	QPSK	5 204.04	V	-55.41	10.39	-45.02	69.33	49.31
				7 805.73	H	-42.42	12.30	-30.12	54.43	
				10 407.67	H	-42.75	13.02	-29.73	54.04	
		16QAM	16QAM	5 204.04	V	-56.71	10.39	-46.32	68.76	47.44
				7 805.85	H	-42.67	12.30	-30.37	52.81	
				10 407.45	H	-44.33	13.01	-31.32	53.76	
	2 680	1/99	QPSK	5 377.70	V	-55.45	10.44	-45.01	69.20	49.19
				8 066.68	H	-43.55	12.60	-30.95	55.14	
				10 755.64	H	-40.35	13.10	-27.25	51.44	
		16QAM	16QAM	5 377.94	V	-56.34	10.44	-45.90	68.58	47.68
				8 066.74	H	-46.97	12.60	-34.37	57.05	
				10 755.65	H	-42.62	13.10	-29.52	52.20	
10	2 593	1/49	QPSK	5 194.71	V	-56.71	10.39	-46.32	72.35	51.03
				7 792.35	H	-42.62	12.30	-30.32	56.35	
				10 389.60	H	-42.90	13.00	-29.90	55.93	
		1/49	16QAM	5 194.89	V	-57.04	10.39	-46.65	71.30	49.65
				7 792.15	H	-44.47	12.30	-32.17	56.82	
				10 389.66	H	-44.99	13.00	-31.99	56.64	

<DC 24 V>

B.W (MHz)	Test Freq. (MHz)	RB Size/ Offset	Test Mode	Freq.(MHz)	Ant Pol (H/V)	Level(dBm) @ Ant Terminal	TX Ant Gain(dBi)	Result		Limit (dBc)
								(dBm)	(dBc)	
10	2 593	1/49	QPSK	5 194.92	H	-57.19	10.39	-46.80	73.25	51.45
				7 792.16	V	-43.40	12.30	-31.10	57.55	
				10 389.73	H	-41.37	13.00	-28.37	54.82	

7.6.7 LTE Band 7

<DC 12 V>

B.W (MHz)	Test Freq. (MHz)	RB Size/ Offset	Test Mode	Freq.(MHz)	Ant Pol (H/V)	Level(dBm) @ Ant Terminal	TX Ant Gain(dBi)	Result		Limit (dBc)
								(dBm)	(dBc)	
20	2 510	1/50	QPSK	5 020.24	H	-53.36	10.24	-43.12	69.57	51.45
				7 530.15	H	-48.75	12.16	-36.59	63.04	
				10 040.44	H	-50.64	13.10	-37.54	63.99	
			16QAM	5 020.14	H	-54.80	10.24	-44.56	69.81	50.25
				7 530.30	H	-49.75	12.16	-37.59	62.84	
				10 040.48	H	-51.82	13.10	-38.72	63.97	
	2 535	1/0	QPSK	5 038.53	H	-53.31	10.28	-43.03	69.51	51.48
				7 578.12	H	-49.94	12.20	-37.74	64.22	
				10 104.47	H	-49.51	13.09	-36.42	62.90	
			16QAM	5 052.30	H	-55.20	10.30	-44.90	69.91	50.01
				7 578.37	H	-53.12	12.20	-40.92	65.93	
				10 104.48	H	-51.18	13.09	-38.09	63.10	
	2 560	1/0	QPSK	5 102.27	H	-51.74	10.30	-41.44	69.14	52.70
				7 653.22	H	-48.30	12.20	-36.10	63.80	
				10 204.25	H	-44.49	13.00	-31.49	59.19	
			16QAM	5 102.35	H	-53.81	10.30	-43.51	69.39	50.88
				7 653.16	H	-49.62	12.20	-37.42	63.30	
				10 204.50	H	-45.87	13.00	-32.87	58.75	

<DC 24 V>

B.W (MHz)	Test Freq. (MHz)	RB Size/ Offset	Test Mode	Freq.(MHz)	Ant Pol (H/V)	Level(dBm) @ Ant Terminal	TX Ant Gain(dBi)	Result		Limit (dBc)
								(dBm)	(dBc)	
20	2 560	1/50	QPSK	5 102.33	H	-52.84	10.30	-42.54	70.04	52.50
				7 653.34	H	-47.35	12.20	-35.15	62.65	
				10 204.20	H	-45.92	13.00	-32.92	60.42	