Direct Communication Solutions

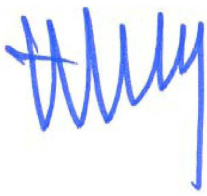
Application
For
Certification
of 47 CFR Part 22 and Part 24 Certification

FCC ID: 2ABPW-DCS559-R

Router

Model: DCS-559

Report No.: 131105006SZN-003

Prepared and Checked by:	Approved by:
	
Billy Li Supervisor	Leung Wai Leung, Tommy Deputy General Manager February 10, 2014

Intertek Testing Services Shenzhen Ltd. Kejiyuan Branch
6F, D Block, Huahan Building, Langshan Road, Nanshan District, Shenzhen, P. R. China
Tel: (86 755) 8601 6288 Fax: (86 755) 8601 6751 Website: www.china.intertek-etlsemko.com

GENERAL INFORMATION

Applicant Name:	Direct Communication Solutions
Applicant Address:	4171 W. Hillsboro Blvd, Suite 3, Coconut Creek, Florida 33073 United States
FCC Specification Standard:	FCC Part 22: 2013 FCC Part 24: 2013
FCC ID:	2ABPW-DCS559-R
FCC Model(s):	DCS-559
Type of EUT:	CDMA Router with WiFi
Description of EUT:	Router
Serial Number:	N/A
Sample Receipt Date:	November 5, 2013
Date of Test:	December 30, 2013
Report Date:	February 10, 2014
Environmental Conditions:	Temperature: 25 ± 10°C Humidity: 10 to 90%

List of Exhibits

Exhibit Type	File Description	Filename
Test Report	Test Report	report.pdf
Operational Description	Technical Description	descri.pdf
Test Report	Bandwidth Plot	bw.pdf
Test Report	Spurious Emissions	cspurious.pdf
Test Report	Bandedge Plot	be.pdf
RF Exposure Info	RF exposure info	RF exposure info.pdf
External Photos	External Photo	external photos.pdf
Internal Photos	Internal Photo	internal photos.pdf
ID Label/Location Info	Label Artwork and Location	label.pdf
Block Diagrams	Block Diagram	block.pdf
Schematics	Circuit Diagram	circuit.pdf
User Manual	User Manual	manual.pdf
Part List/Tune Up Info	Tune Up Procedure	tuneup.pdf
Part List/Tune Up Info	Part List	partlist.pdf
Cover Letter	Letter of Agency	letter of agency.pdf
Cover Letter	Confidentiality Request	request.pdf

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1.1 Statement of Compliance

The equipment under test is found to be complying with the applicable requirements of following standards:

FCC Part 22: 2013
FCC Part 24: 2013

2.0 General Description

2.1 Product Description

The DCS-559 is a CDMA Router.

The Cellular and PCS frequency ranges of the EUT are as below:

CDMA/1x RTT/EV-DO Rev.0/ EV-DO Rev.A 850MHz:
Tx: 824.70 – 848.31MHz
Rx: 869.70 – 893.31MHz

CDMA/1x RTT/EV-DO Rev.0/ EV-DO Rev.A 1900MHz:
Tx: 1851.25 – 1908.75MHz
Rx: 1931.25 – 1988.75MHz

The EUT is powered by AC/DC Adapter (model: GFP181U-090200B-2) with input of 100-240VAC, 50/60Hz and output of DC9V, 2A.

The antenna used in the EUT is integral, and the test sample is a prototype.

The circuit description is attached and saved with filename: descri.pdf.

2.2 Test Methodology

Preliminary radiated scans and all radiated measurements were performed in semi-anechoic chamber. All Radiated tests were performed at an antenna to EUT distance of 3 meters, unless stated otherwise in the "**Justification Section**" of this Application. All measurements were made in accordance with the procedures in 47 CFR Part 2, Part 22, Part 24 and TIA-603-C.

2.3 Test Facility

The facilities used to collect the radiated data and conducted data are in **Interterk Testing Services Shenzhen Ltd. Kejiyuan Branch** and located at 6F, D Block, Huahan Building, Langshan Road, Nanshan District, Shenzhen, P. R. China. This test facility and site measurement data have been fully placed on file with the FCC (Registration Number: 242492).

3.0 System Test Configuration

3.1 Justification

For radiated emissions testing, the equipment under test (EUT) was controlled by communication tester to produce maximum power. Care was taken to ensure proper power supply voltages during testing. During testing, all cables (if any) were manipulated to produce worst case emissions.

The EUT was powered by AC/DC Adapter (model: GFP181U-090200B-2) with input of 100-240VAC, 50/60Hz and output of DC9V, 2A. And all the accessories were considered, only the worst case was reported.

For the measurements, the EUT is attached to a plastic stand if necessary and placed on the wooden turntable. If the EUT attaches to peripherals, they are connected and operational to simulate typical use.

The signal is maximized through rotation and placement in the three orthogonal axes. The antenna polarization are varied during the search for maximum signal level. Only the worst-case polarization is reported. For each spurious, raise and lower the test antenna from 1m to 4m to obtain a maximum reading on the spectrum analyzer. Radiated emissions are taken at three meters. If necessary, a pre-amplifier is used and/or the test is conducted at a closer distance.

The power level of EUT is set by the communication tester are the maximum power levels emitted by the EUT.

For the 850MHz band, according to 22.917, compliance with the rule is based on the use of instrumentation employing a resolution bandwidth of 100 kHz or greater. In the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter is employed. The 26dB emission bandwidth taken in section 4.4 is used for calculating the resolution bandwidth.

For the 1900MHz band, according to 24.238, compliance with the rule is based on the use of instrumentation employing a resolution bandwidth of 1 MHz or greater. However, in the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter is employed. The 26dB emission bandwidth taken in section 4.4 is used for calculating the resolution bandwidth.

Emission that are directly caused by digital circuits in the transmit path and transmitter portion are measured, and the limit are according to FCC Part 15 Section 15.109.

3.1 Justification - Cont'd

Detector function for radiated emissions is in peak mode.

All relevant operation modes have been tested, and the worst case data is included in this report.

Simultaneous transmission (WiFi in this case) was investigated and no new emissions were found.

3.2 Details of EUT Accessories

Description	Manufacturer	Model No.
AC/DC Adapter	Direct Communication Solutions	GFP181U-090200B-2
Laptop	Lenovo	X1
Hard Disk	Smart.drive	HD-003
USB Cable	Smart.drive	Unshielded, Length 155cm
1394 Cable	Smart.drive	Unshielded, Length 180cm
USB Disk	SanDisk	U210
3 * Router	TP-Link	TL-MR11U
5 * Network Cable	N/A	Unshielded, Length: 100cm

3.3 Measurement Uncertainty

When determining of the test conclusion, the Measurement Uncertainty of test has been considered.

Uncertainty and Compliance - Unless the standard specifically states that measured values are to be extended by the measurement uncertainty in determining compliance, all compliance determinations are based on the actual measured value.

3.4 Equipment Modification

Any modifications installed previous to testing by Direct Communication Solutions will be incorporated in each production model sold/leased in the United States.

No modifications were installed by Intertek Testing Services Shenzhen Ltd. Kejiyuan Branch.

4.0 **Test Results**

Data is included of the worst case configuration (the configuration which resulted in the highest emission levels).Configuration photographs and data tables of the emissions are included.

4.1 Channels for Cellular and Broadband PCS Services (FCC Part 22.905, Part 24.229)

The following frequency bands are allocated for assignment to service providers in the Cellular Radiotelephone and Broadband PCS Services by FCC:

850MHz band
(a) Channel Block A:
869 - 880 MHz paired with 824 - 835 MHz
890 - 891.5 MHz paired with 845 - 846.5 MHz
(b) Channel Block B:
880 - 890 MHz paired with 835 - 845 MHz
891.5 - 894 MHz paired with 846 - 849 MHz

1900MHz band
The following frequency blocks are available for assignment on a Major Trading Areas (MTA) basis:
Block A: 1850 - 1865 MHz paired with 1930 - 1945 MHz; and
Block B: 1870 - 1885 MHz paired with 1950 - 1965 MHz.

The following frequency blocks are available for assignment on a Basic Trading Areas (BTA) basis:
Block C: 1895 - 1910 MHz paired with 1975 - 1990 MHz
Block D: 1865 - 1870 MHz paired with 1945 - 1950 MHz
Block E: 1885 - 1890 MHz paired with 1965 - 1970 MHz
Block F: 1890 - 1895 MHz paired with 1970 - 1975 MHz

The frequency range of the EUT is as below:

CDMA/1x RTT/EV-DO Rev.0/ EV-DO Rev.A 850MHz:
Tx: 824.70 – 848.31MHz
Rx: 869.70 – 893.31MHz

CDMA/1x RTT/EV-DO Rev.0/ EV-DO Rev.A 1900MHz:
Tx: 1851.25 – 1908.75MHz
Rx: 1931.25 – 1988.75MHz

As a result, the frequency range of the EUT fits into the allocated frequency blocks.

4.2 RF Power Output (FCC Part 2.1046, 22.913 & 24.232)

The RF power output is measured at the RF output terminal. The limit is as follows:
Part 22.913 (for 850MHz band):

[ ] ≤ 500W ERP (57dBm) for base stations and cellular repeaters
[√] ≤ 7W ERP (38.5dBm) for mobile and auxiliary test transmitters

Part 24.232 (for 1900MHz band):

[ ] ≤ 1640W e.i.r.p. (62.1dBm) for base stations up to 300m HAAT;
[√] ≤ 2W e.i.r.p. (33dBm) peak output power for portable mobile

Test results:

Band	ARFCN	Frequency (MHz)	Antenna Gain (dBi)	Measured output power (dBm)	*ERP (dBm)	Limit (dBm)	Verdict
1XRTT 850MHz	384	836.52	1.0	22.3	21.15	38.5	Pass
EV-DO Rev.0 850MHz	384	836.52	1.0	22.3	21.15	38.5	Pass
EV-DO Rev.A 850MHz	384	836.52	1.0	22.4	21.25	38.5	Pass

Band	ARFCN	Frequency (MHz)	Antenna Gain (dBi)	Measured output power (dBm)	#EIRP (dBm)	Limit (dBm)	Verdict
1XRTT 1900MHz	600	1880.0	2.8	20.6	23.4	33.0	Pass
EV-DO Rev.0 1900MHz	600	1880.0	2.8	20.7	23.5	33.0	Pass
EV-DO Rev.A 1900MHz	600	1880.0	2.8	20.7	23.5	33.0	Pass

*ERP (dBm) = Conducted Power (dBm) + Antenna Gain (dBi) - 2.15dB
#EIRP (dBm) = Conducted Power (dBm) + Antenna Gain (dBi)
Remark: PK detector was used for output power measurement.
The PAR of the transmission for CDMA is 9.65.
RBW: 10MHz and VBW: 10MHz were used.

4.3 Occupied Bandwidth (FCC Part 2.1049)

From 2.1049, occupied bandwidth is defined as the measured spectral width of an emission. The measurement determines occupied bandwidth as the difference between upper and lower frequencies where 0.5% of the emission power is above the upper frequency and 0.5% of the emission power is below the lower frequency.

The 26dB bandwidth is also recorded to determine the resolution bandwidth used in measurements, as specified in 22.917 and 24.238.

Test results:

Band	ARFCN	Frequency (MHz)	99% Bandwidth (MHz)	26dB Bandwidth (MHz)
1XRTT 850MHz	384	836.52	1.27	1.43
EV-DO Rev.0 850MHz	384	836.52	1.28	1.43
EV-DO Rev.A 850MHz	384	836.52	1.27	1.43
1XRTT 1900MHz	600	1880.0	1.28	1.43
EV-DO Rev.0 1900MHz	600	1880.0	1.27	1.43
EV-DO Rev.A 1900MHz	600	1880.0	1.28	1.43

The plots of 99% and 26dB bandwidth are saved in the file bw.pdf.

4.4 Spurious Emissions at Antenna Terminals (FCC Part 2.1051, 2.1057, 22.917, 24.238)

The conducted spurious emissions are measured from 9kHz up to the 10th harmonic of fundamental emission.

According to 22.917 and 24.238, the power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10log(P) dB, i.e. at or below -13dBm.

Test results:

Band	ARFCN	Frequency (MHz)	Verdict
1XRTT 850MHz	384	836.52	Pass
EV-DO Rev.0 850MHz	384	836.52	Pass
EV-DO Rev.A 850MHz	384	836.52	Pass
1XRTT 1900MHz	600	1880.0	Pass
EV-DO Rev.0 1900MHz	600	1880.0	Pass
EV-DO Rev.A 1900MHz	600	1880.0	Pass

The plots are saved in the file cspurious.pdf.

4.5 Power of Spurious Emissions (FCC Part 2.1053, 2.1057, 22.917, 24.238)

The radiated spurious emissions are tested per TIA/EIA-603 using the Substitution Method and measured from 9KHz up to the 10th harmonic of fundamental emission.

According to 22.917 and 24.238, the power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10log(P) dB, i.e. at or below -13dBm.

Test results:

1XRTT 850MHz (ARFCN = 384, Channel frequency = 836.52MHz):

Polarization	Frequency (MHz)	Measured ERP (dBm)	Limit ERP (dBm)	Margin (dB)
H	1673.04	-34.2	-13	-21.2
H	2509.56	-51.0	-13	-38.0

EV-DO Rev.0 850MHz (ARFCN = 384, Channel frequency = 836.52MHz):

Polarization	Frequency (MHz)	Measured ERP (dBm)	Limit ERP (dBm)	Margin (dB)
H	1673.04	-33.6	-13	-20.6
H	2509.56	-51.1	-13	-38.1

EV-DO Rev.A 850MHz (ARFCN = 384, Channel frequency = 836.52MHz):

Polarization	Frequency (MHz)	Measured ERP (dBm)	Limit ERP (dBm)	Margin (dB)
H	1673.04	-32.8	-13	-19.8
H	2509.56	-50.2	-13	-37.2

1XRTT 1900MHz (ARFCN = 600, Channel frequency = 1880.0MHz):

Polarization	Frequency (MHz)	Calculated EIRP (dBm)	Limit EIRP (dBm)	Margin (dB)
H	3760	-49.6	-13	-36.6
H	5640	-48.3	-13	-35.3

EV-DO Rev.0 1900MHz (ARFCN = 600, Channel frequency = 1880.0MHz):

Polarization	Frequency (MHz)	Calculated EIRP (dBm)	Limit EIRP (dBm)	Margin (dB)
H	3760	-50.2	-13	-37.2
H	5640	-47.5	-13	-34.5

EV-DO Rev.A 1900MHz (ARFCN = 600, Channel frequency = 1880.0MHz):

Polarization	Frequency (MHz)	*Calculated EIRP (dBm)	Limit EIRP (dBm)	Margin (dB)
H	3760	-49.8	-13	-36.8
H	5640	-48.3	-13	-35.3

*EIRP = ERP + 2.15dB

Remarks: the magnitudes of spurious emission which are attenuated more than 20 dB below the permissible value are not reported.

4.6 Blockedge at Antenna Terminals (FCC Part 22.917, 24.238)

In the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter is employed. The 26dB emission bandwidth taken in section 4.4 is used for calculating the resolution bandwidth.
The power of any emission at the blockedge must be attenuated below the transmitting power (P) by a factor of at least 43 +10 Log (P) dB, i.e. at or below -13dBm when using 1% emissions bandwidth.
According to the FCC KDB with Publication Number: 890810, measurements using narrower resolution bandwidths are acceptable and must sum the power from all contiguous reduced resolution bandwidths within the 1% resolution specified, an alternative is to add an additional correction factor of 10 Log (RBW1/ RBW2) to the 43 +10 Log (P) limit. RBW1 is the narrower measurement resolution bandwidth and RBW2 is the 1% emissions bandwidth.
The correction factor = 10 Log (RBW1/ RBW2) = 10 Log (3/14.3) = -6.78 dB

Test results:

Band	ARFCN	Channel Frequency (MHz)	Worst case bandedge emission with RBW 3KHz(dBm)	Correction Factor (dB)	Worst case bandedge emission with RBW 14.3KHz(dBm)	Limit (dBm)	Verdict
1XRTT 850MHz	1013	824.70	-20.58	6.78	-13.80	-13	PASS
	777	848.31	-19.89	6.78	-13.11	-13	PASS
EV-DO Rev.0 850MHz	1013	824.70	-19.90	6.78	-13.12	-13	PASS
	777	848.31	-19.93	6.78	-13.15	-13	PASS
EV-DO Rev.A 850MHz	1013	824.70	-20.54	6.78	-13.76	-13	PASS
	777	848.31	-20.03	6.78	-13.25	-13	PASS
1XRTT 1900MHz	25	1851.25	-33.95	6.78	-27.17	-13	PASS
	1175	1908.75	-37.62	6.78	-30.84	-13	PASS
EV-DO Rev.0 1900MHz	25	1851.25	-29.22	6.78	-22.44	-13	PASS
	1175	1908.75	-36.63	6.78	-29.85	-13	PASS
EV-DO Rev.A 1900MHz	25	1851.25	-28.94	6.78	-22.16	-13	PASS
	1175	1908.75	-34.78	6.78	-28.00	-13	PASS

The plots are saved in the file be.pdf.

4.7 Frequency Stability (FCC Part 2.1055, 22.355, 24.235)

The frequency stability is measured with the temperature variation range of -30℃ to +50℃ (10℃ increment), and voltage supply variation range of 85% to 115% of nominal AC supply voltage, and/or nominal to battery end points for hand-carried battery-powered supplies.

[√] AC nominal supply voltage: 120VAC
[ ] Battery nominal voltage: _____VDC; End points: ____VDC

20℃ is taken as temperature in normal condition.

For the 850MHz band, according to 22.355, the stability requirements are: ±1.5ppm for mobile units and ±2.5ppm for portable units.

For the 1900MHz band, according to 24.235, the frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block.

Test results for operation powered by AC voltage:

1XRTT 850MHz (ARFCN = 384, Channel frequency = 836.52MHz):

Input voltage (VDC)	Temperature (°C)	Frequency deviation (Hz)	Limit (Hz)	Verdict
120	-30	-134	±2091.5	PASS
	-20	-138		PASS
	-10	-140		PASS
	0	-140		PASS
	+10	-143		PASS
	+20	-144		PASS
	+30	-146		PASS
	+40	-141		PASS
	+50	-138		PASS
102	+20	-142		PASS
138	+20	-146		PASS

EV-DO Rev.0 850MHz (ARFCN = 384, Channel frequency = 836.52MHz):

Input voltage (VDC)	Temperature (°C)	Frequency deviation (Hz)	Limit (Hz)	Verdict
120	-30	-141	±2091.5	PASS
	-20	-142		PASS
	-10	-141		PASS
	0	-143		PASS
	+10	-145		PASS
	+20	-146		PASS
	+30	-148		PASS
	+40	-150		PASS
	+50	-150		PASS
102	+20	-146		PASS
138	+20	-145		PASS

EV-DO Rev.A 850MHz (ARFCN = 384, Channel frequency = 836.52MHz):

Input voltage (VDC)	Temperature (°C)	Frequency deviation (Hz)	Limit (Hz)	Verdict
120	-30	-139	±2091.5	PASS
	-20	-138		PASS
	-10	-140		PASS
	0	-141		PASS
	+10	-142		PASS
	+20	-144		PASS
	+30	-145		PASS
	+40	-148		PASS
	+50	-149		PASS
102	+20	-145		PASS
138	+20	-144		PASS

1XRTT 1900MHz (ARFCN = 25, Channel frequency = 1851.25MHz):

Input voltage (VDC)	Temperature (°C)	Measured Frequency (MHz)	Limit (MHz)	Verdict
120	-30	1851.250156	1850 - 1910	PASS
	-20	1851.250154		PASS
	-10	1851.250150		PASS
	0	1851.250143		PASS
	+10	1851.250140		PASS
	+20	1851.250141		PASS
	+30	1851.250153		PASS
	+40	1851.250145		PASS
	+50	1851.250143		PASS
102	+20	1851.250152		PASS
138	+20	1851.250152		PASS

1XRTT 1900MHz (ARFCN = 1175, Channel frequency = 1908.75MHz):

Input voltage (VDC)	Temperature (°C)	Measured Frequency (MHz)	Limit (MHz)	Verdict
120	-30	1908.750149	1850 - 1910	PASS
	-20	1908.750152		PASS
	-10	1908.750148		PASS
	0	1908.750141		PASS
	+10	1908.750140		PASS
	+20	1908.750141		PASS
	+30	1908.750149		PASS
	+40	1908.750145		PASS
	+50	1908.750143		PASS
102	+20	1908.750141		PASS
138	+20	1908.750142		PASS

EV-DO Rev.0 1900MHz (ARFCN = 25, Channel frequency = 1851.25MHz):

Input voltage (VDC)	Temperature (°C)	Measured Frequency (MHz)	Limit (MHz)	Verdict
120	-30	1851.250154	1850 - 1910	PASS
	-20	1851.250150		PASS
	-10	1851.250151		PASS
	0	1851.250144		PASS
	+10	1851.250142		PASS
	+20	1851.250140		PASS
	+30	1851.250148		PASS
	+40	1851.250147		PASS
	+50	1851.250148		PASS
102	+20	1851.250151		PASS
138	+20	1851.250149		PASS

EV-DO Rev.0 1900MHz (ARFCN = 1175, Channel frequency = 1908.75MHz):

Input voltage (VDC)	Temperature (°C)	Measured Frequency (MHz)	Limit (MHz)	Verdict
120	-30	1908.750156	1850 - 1910	PASS
	-20	1908.750150		PASS
	-10	1908.750149		PASS
	0	1908.750144		PASS
	+10	1908.750144		PASS
	+20	1908.750138		PASS
	+30	1908.750145		PASS
	+40	1908.750144		PASS
	+50	1908.750142		PASS
102	+20	1908.750140		PASS
138	+20	1908.750142		PASS

EV-DO Rev.A 1900MHz (ARFCN = 25, Channel frequency = 1851.25MHz):

Input voltage (VDC)	Temperature (°C)	Measured Frequency (MHz)	Limit (MHz)	Verdict
120	-30	1851.250149	1850 - 1910	PASS
	-20	1851.250150		PASS
	-10	1851.250148		PASS
	0	1851.250146		PASS
	+10	1851.250142		PASS
	+20	1851.250144		PASS
	+30	1851.250145		PASS
	+40	1851.250141		PASS
	+50	1851.250149		PASS
102	+20	1851.250154		PASS
138	+20	1851.250148		PASS

EV-DO Rev.0 1900MHz (ARFCN = 1175, Channel frequency = 1908.75MHz):

Input voltage (VDC)	Temperature (°C)	Measured Frequency (MHz)	Limit (MHz)	Verdict
120	-30	1908.750152	1850 - 1910	PASS
	-20	1908.750153		PASS
	-10	1908.750148		PASS
	0	1908.750143		PASS
	+10	1908.750145		PASS
	+20	1908.750139		PASS
	+30	1908.750144		PASS
	+40	1908.750143		PASS
	+50	1908.750145		PASS
102	+20	1908.750143		PASS
138	+20	1908.750144		PASS

4.8 Radio Frequency Exposure Compliance

EUT is subject to the radio frequency exposure requirements specified in FCC Rule §§ 1.1307(b), 2.1093. It shall be considered to operate in a “general population / uncontrolled” environment.

[ ] Portable unit: EUT was evaluated for Specific Absorption Rate (SAR) evaluation compliance according to KDB 447498. It is in compliance with the SAR evaluation requirements. A SAR test report was submitted at same time and saved as SAR Report.pdf.

[×] Mobile unit: EUT was evaluated for Maximum Permissible Exposure (MPE) evaluation compliance according to KDB 447498. The evaluation calculation results are saved as filename: RF exposure info.pdf.

5.0 **Equipment List**

Equipment	EMI Test Receiver	EMI Test Receiver	Spectrum Analyzer	Universal Radio Communication Tester
Registration No.	SZ185-02	SZ185-01	SZ056-03	SZ065-1
Manufacturer	R&S	R&S	R&S	R&S
Model No.	ESCI	ESCI	FSP30	CMU200
Calibration Date	09-Nov-2013	09-Nov-2013	11-Mar-2013	23-Jun-2013
Calibration Due Date	09-Nov-2014	09-Nov-2014	11-Mar-2014	23-Jun-2014

Equipment	BiConLog Antenna	Horn Antennas	Signal Generator	Active Loop Antenna
Registration No.	SZ061-03	SZ061-08 SZ061-09	SZ180-01	SZ061-06
Manufacturer	ETS	ETS	R&S	Electro-Metrics
Model No.	3142C	3115	SML03	EM-6876
Calibration Date	29-Jun-2013	26-Oct-2013	21-May-2013	13-May-2013
Calibration Due Date	29-Jun-2014	26-Oct-2014	21-May-2014	13-May-2014

Equipment	Universal Radio Communication Tester	RF Power Meter	Temperature & Humidity Chamber	Roberts Antennas
Registration No.	SZ065-2	SZ182-01	SZ016-02	EW-0159
Manufacturer	Agilent	BOONTON	Dongzhix	CDI
Model No.	8960	4232A	WGD/SJ-415-A	A100
Calibration Date	23-Jun-2013	12-Mar-2013	4-Nov-2013	12-May-2013
Calibration Due Date	23-Jun-2014	12-Mar-2014	4-Nov-2014	12-May-2014

Equipment	Notch Filter	Notch Filter	Highpass Filter
Registration No.	SZ067-05	SZ067-08	SZ067-11
Manufacturer	Micro-Tronics	Wainwright	Wainwright
Model No.	BRM50707-02	WRCT800/960-0.2/40-8SSK	WHKX1.0/15G-10S
Calibration Date	21-May-2013	17-Oct-2013	21-May-2013
Calibration Due Date	21-May-2014	17-Oct-2014	21-May-2014

END OF TEST REPORT