

Global United Technology Services Co., Ltd.

Report No.: GTS201904000036E01

EMC REPORT

Applicant: Dragino Technology Co., Limited

Address of Applicant: Room 202, Block B, BCT Incubation Bases (BaoChengTai),

No.8 CaiYunRoad LongCheng Street, LongGang District;

Shenzhen 518116, China

Manufacturer/Factory: Dragino Technology Co., Limited

Address of Room 202, Block B, BCT Incubation Bases (BaoChengTai),

Manufacturer/Factory: No.8 CaiYunRoad LongCheng Street, LongGang District;

Shenzhen 518116, China

Equipment Under Test (EUT)

Product Name: LoRaWAN Sensor Node

Model No.: LSN50

Trade Mark: Dragino

Applicable standards: ETSI EN 301 489-1 V2.1.1 (2017-02)

Final draft ETSI EN 301 489-3 V2.1.1 (2017-03)

Date of sample receipt: April 03, 2019

Date of Test: April 04-22, 2019

Date of report issue: April 22, 2019

PASS * Test Result:

The CE mark as shown below can be used, under the responsibility of the manufacturer, after completion of an EC Declaration of Conformity and compliance with all relevant EC Directives. The protection requirements with respect to electromagnetic compatibility contained in Directive 2014/53/EU are considered.



Robinson Lo Laboratory Manager

This results shown in this test report refer only to the sample(s) tested, this test report cannot be reproduced, except in full, without prior written permission of the company. The report would be invalid without specific stamp of test institute and the signatures of compiler and approver

^{*} In the configuration tested, the EUT complied with the standards specified above.



2 Version

Version No.	Date	Description
00	April 22, 2019	Original

Prepared By:	Bic. Juli	Date:	April 22, 2019	
	Project Engineer			
Check Bv:	Data conto	Date:	April 22, 2019	

DILL MUAN

Reviewer



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4 Test Summary

EMI Test	EMI Test							
Test Item	Test Requirement	Test Method	Application	Result				
Radiated Emission	ETSI EN 301 489-3	ETSI EN301 489-1	Enclosure	Pass				
Conducted Emission	ETSI EN 301 489-3	ETSI EN301 489-1	AC port	N/A				
Harmonic Current Emissions	ETSI EN 301 489-3	ETSI EN301 489-1	AC port	N/A				
Voltage Fluctuations and Flicker	ETSI EN 301 489-3	ETSI EN301 489-1	AC port	N/A				
EMS Test								
ESD (Electrostatic Discharge)	ETSI EN 301 489-3	EN 61000-4-2	Enclosure	Pass				
Radio frequency electromagnetic field (80 MHz to 6 000 MHz)	ETSI EN 301 489-3	EN 61000-4-3	Enclosure	Pass				
EFT (Electrical Fast Transients	ETSI EN 301 489-3	EN 61000-4-4	AC port	N/A				
Surge Immunity	ETSI EN 301 489-3	EN 61000-4-5	AC port	N/A				
Radio frequency, common mode	ETSI EN 301 489-3	EN 61000-4-6	AC port	N/A				
Voltage Dips and Interruptions	ETSI EN 301 489-3	EN 61000-4-11	AC port	N/A				

Remark:

Pass: The EUT complies with the essential requirements in the standard.

N/A: Not applicable



5 General Information

5.1 General Description of EUT

Pro	duct Name:	LoRaWAN Sensor Node
Mod	del No.:	LSN50
Оре	eration Frequency:	863MHz~870MHz
Cha	annel numbers:	35
Cha	annel separation:	200kHz
Occ	cupied bandwidth	200kHz(Declared by manufacturer)
Mod	dulation technology:	FSK
Ante	enna Type:	Integral antenna
Ante	enna gain:	3.43(Declared by applicant)
Pow	ver supply:	Battery: DC 3.6V



5.2 Operating Modes

SRD mode: Keep the EUT in communicating mode on SRD 868MHz function.

5.3 Description of Support Units

None.

5.4 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

• FCC —Registration No.: 381383

Global United Technology Services Co., Ltd., Shenzhen EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in files. Registration 381383.

• Industry Canada (IC) —Registration No.: 9079A-2

The 3m Semi-anechoic chamber of Global United Technology Services Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 9079A-2.

• NVLAP (LAB CODE:600179-0)

Global United Technology Services Co., Ltd., is accredited by the National Voluntary Laboratory Accreditation Program (NVLAP). LAB CODE:600179-0

5.5 Test Location

RS test was performed at:

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen Branch E&E Lab,

No. 1 Workshop, M-10, Middle Section, Science & Technology Park, Shenzhen, Guangdong, China. 518057.

All other tests were performed at:

Global United Technology Services Co., Ltd.

Address: No. 123-128, Tower A, Jinyuan Business Building, No.2, Laodong Industrial Zone, Xixiang

Road, Baoan District, Shenzhen, Guangdong, China

Tel: 0755-27798480 Fax: 0755-27798960

5.6 Deviation from Standards

None.

5.7 Abnormalities from Standard Conditions

None.

5.8 Other Information Requested by the Customer

None.

Global United Technology Services Co., Ltd.

No. 123-128, Tower A, Jinyuan Business Building, No.2, Laodong Industrial Zone,

Xixiang Road, Baoan District, Shenzhen, Guangdong, China



6 Equipment Used during Test

Radi	iated Emission:					
Item	Test Equipment	Manufacturer	ıfacturer Model No.		Cal.Date (mm-dd-yy)	Cal.Due date (mm-dd-yy)
1	3m Semi- Anechoic Chamber	ZhongYu Electron	9.2(L)*6.2(W)* 6.4(H)	GTS250	July. 03 2015	July. 02 2020
2	Control Room	ZhongYu Electron	6.2(L)*2.5(W)* 2.4(H)	GTS251	N/A	N/A
3	EMI Test Receiver	Rohde & Schwarz	ESU26	GTS203	June. 27 2018	June. 26 2019
4	BiConiLog Antenna	SCHWARZBECK MESS-ELEKTRONIK	VULB9163	GTS214	June. 27 2018	June. 26 2019
5	Double -ridged waveguide horn	SCHWARZBECK MESS-ELEKTRONIK	BBHA 9120 D	GTS208	June. 27 2018	June. 26 2019
6	Horn Antenna	ETS-LINDGREN	3160	GTS217	June. 27 2018	June. 26 2019
7	EMI Test Software	AUDIX	E3	N/A	N/A	N/A
8	Coaxial Cable	GTS	N/A	GTS213	June. 27 2018	June. 26 2019
9	Coaxial Cable	GTS	GTS N/A G		June. 27 2018	June. 26 2019
10	Coaxial cable	GTS	N/A	GTS210	June. 27 2018	June. 26 2019
11	Coaxial Cable	GTS	N/A	GTS212	June. 27 2018	June. 26 2019
12	Amplifier(100kHz-3GHz)	HP	8347A	GTS204	June. 27 2018	June. 26 2019
13	Amplifier(2GHz-20GHz)	HP	84722A	GTS206	June. 27 2018	June. 26 2019
14	Amplifier (18-26GHz)	Rohde & Schwarz	AFS33-18002 650-30-8P-44	GTS218	June. 27 2018	June. 26 2019
15	Band filter	Amindeon	82346	GTS219	June. 27 2018	June. 26 2019
16	Power Meter	Anritsu	ML2495A	GTS540	June. 27 2018	June. 26 2019
17	Power Sensor	Anritsu	MA2411B	GTS541	June. 27 2018	June. 26 2019
18	Wideband Radio Communication Tester	Rohde & Schwarz	CMW500	GTS575	June. 27 2018	June. 26 2019
19	Splitter	Agilent	11636B	GTS237	June. 27 2018	June. 26 2019
20	Loop Antenna	ZHINAN	ZN30900A	GTS534	June. 27 2018	June. 26 2019
21	Breitband hornantenne	SCHWARZBECK	BBHA 9170	GTS579	Oct. 20 2018	Oct. 19 2019
22	Amplifier	TDK	PA-02-02	GTS574	Oct. 20 2018	Oct. 19 2019
23	Amplifier	TDK	PA-02-03	GTS576	Oct. 20 2018	Oct. 19 2019
24	PSA Series Spectrum Analyzer	Rohde & Schwarz	FSP	GTS578	June. 27 2018	June. 26 2019



Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date	
Fully-Anechoic Chamber 2	Chang Zhou Zhong Shuo	854	SEM001-05	2017-05-10	2020-05-09	
Measurement Software	Rohde & Schwarz	EMC32 V9.25.00	N/A	N/A	N/A	
Signal Generator	Rohde & Schwarz	SMB100A	SEM006-11	2019-04-02	2020-04-01	
Broadband Amplifier (80MHz-1GHz)	Rohde & Schwarz	BBA150-BC250	SEM005-12	2018-09-26	2019-09-25	
Broadband Amplifier (800MHz-3GHz)	Rohde & Schwarz	BBA150-D110	SEM005-13	2019-04-02	2020-04-01	
Broadband Amplifier (2.5GHz-6GHz)	Rohde & Schwarz	BBA150-E60	SEM005-16	2019-04-13	2020-04-12	
Power Sensor	Rohde & Schwarz	NRP-Z91	SEM009-09	2019-04-02	2020-04-01	
Stacked LogPerBroadband Antenna(70MHz-10GHz)	Schwarzbeck	STLP 9129	SEM003-25	N/A	N/A	
Amplifier(10kHz-250MHz)	Amplifier Research	75A250A	SEM005-11	2019-04-02	2020-04-01	
Universal Radio Communication Tester	Rohde & Schwarz	CMU 200	SEM010-01	2018-09-26	2019-09-25	
Universal Radio Communication Tester	Rohde & Schwarz	CMW 500	SEM010-03	2019-04-02	2020-04-01	
Conditioning Amplifier	Brüel & Kjaer	2690-OS2	SEM005-10	2018-04-20	2019-04-19	
Mouth Simulator	Brüel & Kjaer	4227	SEM017-01	2019-04-10	2020-04-09	
Signal Source	Brüel & Kjaer	4231	SEM017-02	2019-04-14	2020-04-13	
Audio Analyzer	Rohde & Schwarz	UPV	SEM008-03	2018-09-26	2019-09-25	

ESD	ESD								
Item	em Test Equipment Manufacturer		er Model No. Inventor		Cal.Date (mm-dd-yy)	Cal.Due date (mm-dd-yy)			
1	ESD Simulator	KIKUSUI	KES4021A	GTS242	June. 27 2018	June. 26 2019			
2	Thermo meter	KTJ	TA328	GTS243	June. 27 2018	June. 26 2019			

Gene	General used equipment:								
Item	Test Equipment	Manufacturer Model No.		Inventory No.	Cal.Date (mm-dd-yy)	Cal.Due date (mm-dd-yy)			
1	Humidity/ Temperature Indicator	KTJ	TA328	GTS243	June. 27 2018	June. 26 2019			
2	Barometer	ChangChun	DYM3	GTS255	June. 27 2018	June. 26 2019			



7 EMC Requirements Specification in ETSI EN 301 489-3

7.1 EMI (Emission)

7.1.1 Radiated Emission

_						
ETSI EN 301 489	9-3					
ETSI EN 301 489	9-1 and EN 5	5032				
30MHz to 6GHz						
Measurement Di	stance: 3m					
Frequency	Detector	RBW	VBW	Remark		
30MHz-1GHz		t 100kHz	300kHz	Quasi-peak Value		
Above 1GHz		1MHz		Peak Value		
Above Toriz	AV			Average Value		
				Remark		
				Quasi-peak Value		
230MHz-1	GHz			Quasi-peak Value		
1GHz-30	SHz			Average Value		
10112 00	51.12			Peak Value		
3GHz-60	GHz -			Average Value		
		74.00)	Peak Value		
Below 1GHz Receive Antenna Tower Above 1GHz Above 1GHz Antenna Tower Antenna Tower Antenna Tower Antenna Tower						
Test Receiver Ampilee Controller						
	Above 1GHz Above 1GHz Above 1GHz Above 1GHz Above 1GHz Are Heut Above 1GHz	Measurement Distance: 3m Frequency Detector 30MHz-1GHz Quasi-peal Above 1GHz Peak AV Frequency 30MHz-230MHz 230MHz-1GHz 1GHz-3GHz 3GHz-6GHz Below 1GHz Below 1GHz Above 1GHz Above 1GHz	BETSI EN 301 489-1 and EN 55032 30MHz to 6GHz Measurement Distance: 3m Frequency Detector RBW 30MHz-1GHz Quasi-peak 100kHz Above 1GHz AV 1MHz Frequency Limit (dBuV/i 30MHz-230MHz 40.00 230MHz-1GHz 47.00 1GHz-3GHz 70.00 3GHz-6GHz 54.00 Below 1GHz Below 1GHz Antenna Town	BETSI EN 301 489-1 and EN 55032 30MHz to 6GHz Measurement Distance: 3m Frequency Detector RBW VBW 30MHz-1GHz Quasi-peak 100kHz 300kHz Above 1GHz AV 1MHz 3MHz Frequency Limit (dBuV/m @3m) 30MHz-230MHz 40.00 230MHz-1GHz 47.00 1GHz-3GHz 70.00 3GHz-6GHz 74.00 Below 1GHz Above 1GHz Above 1GHz Frequency Limit (dBuV/m @3m) 30MHz-1GHz 47.00 1GHz-3GHz 70.00 3GHz-6GHz 74.00 Below 1GHz		



Test Procedure:	 From 30MHz to 1GHz: The radiated emissions test was conducted in a semi-anechoic chamber. The tabletop EUT was placed upon a non-metallic table 0.8m above 					
	chamber.					
	2. The tabletop EUT was placed upon a non-metallic table 0.8m above					
	the ground reference plane. And for floor-standing arrangement, the EUT was placed on the horizontal ground reference plane, but separated from metallic contact with the ground reference plane by 0.1m of insulation.					
	 Before final measurements of radiated emissions, a pre-scan was performed in the spectrum mode with the peak detector to find out the maximum emissions spectrum plots of the EUT. 					
	4. The frequencies of maximum emission were determined in the final radiated emissions measurement. At each frequency, the EUT was rotated 360°, and the antenna was raised and lowered from 1 to 4 meters in order to determine the maximum disturbance. Measurements were performed for both horizontal and vertical antenna polarization.					
	■ Above 1GHz:					
	The radiated emissions test was conducted in a fully-anechoic chamber.					
	 The tabletop EUT was placed upon a non-metallic table 0.8m above the ground reference plane. And for floor-standing arrangement, the EUT was placed on the horizontal ground reference plane, but separated from metallic contact with the ground reference plane by 0.1m of insulation. 					
	3. Before final measurements of radiated emissions, a pre-scan was performed in the spectrum mode with the peak detector to find out the maximum emission spectrum plots of the EUT.					
	4. The frequencies of maximum emission were determined in the final radiated emissions measurement. At each frequency, the EUT was rotated 360°, and the antenna was raised and lowered from 1 to 4 meters in order to determine the maximum disturbance. Measurements were performed for both horizontal and vertical antenna polarization.					
Test environment:	Temp.: 25 °C Humid.: 50% Press.: 1 010mbar					
Measurement Record:	Uncertainty: ± 4.5dB					
Test Instruments:	struments: Refer to section 6.0 for details					
Test mode:	Refer to section 5.2 for details					
Test results:	Pass					



Measurement Data

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarity
39.16	44.87	12.08	0.65	35.62	21.98	40.00	-18.02	Vertical
51.30	50.52	12.15	0.78	36.20	27.25	40.00	-12.75	Vertical
95.76	39.61	11.59	1.16	36.69	15.67	40.00	-24.33	Vertical
155.91	46.11	8.05	1.60	37.11	18.65	40.00	-21.35	Vertical
273.23	38.78	12.87	2.24	37.40	16.49	47.00	-30.51	Vertical
460.73	36.10	16.57	3.14	37.51	18.30	47.00	-28.70	Vertical
42.45	40.83	12.23	0.69	35.80	17.95	40.00	-22.05	Horizontal
89.91	37.12	10.57	1.11	36.64	12.16	40.00	-27.84	Horizontal
183.20	39.82	9.23	1.75	37.25	13.55	40.00	-26.45	Horizontal
261.06	40.52	12.51	2.18	37.39	17.82	47.00	-29.18	Horizontal
370.70	37.99	14.86	2.72	37.49	18.08	47.00	-28.92	Horizontal
965.54	35.30	22.57	5.09	37.54	25.42	47.00	-21.58	Horizontal

Above 1GHz

Peak measurement

1 car measurement								
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarity
1260.00	37.81	24.92	4.60	35.90	31.43	70.00	-38.57	Vertical
1715.00	37.24	25.89	5.29	36.43	31.99	70.00	-38.01	Vertical
2825.00	36.51	28.28	6.96	37.30	34.45	70.00	-35.55	Vertical
3685.00	38.57	28.78	8.27	37.47	38.15	74.00	-35.85	Vertical
4710.00	39.86	31.18	9.29	37.57	42.76	74.00	-31.24	Vertical
5645.00	37.47	31.95	10.01	36.87	42.56	74.00	-31.44	Vertical
1205.00	37.25	24.79	4.52	35.82	30.74	70.00	-39.26	Horizontal
2195.00	36.90	26.91	6.01	36.86	32.96	70.00	-37.04	Horizontal
3090.00	36.40	28.55	7.36	37.41	34.90	74.00	-39.10	Horizontal
4120.00	37.08	29.89	8.83	37.51	38.29	74.00	-35.71	Horizontal
4915.00	36.49	31.55	9.44	37.59	39.89	74.00	-34.11	Horizontal
5645.00	36.98	31.95	10.01	36.87	42.07	74.00	-31.93	Horizontal

Notes:

- 1. The EUT was test at 3m in field chamber.
- 2. Final Level =Receiver Read level + Antenna Factor + Cable Loss Preamplifier Factor
- 3. The emission levels of other frequencies are very lower than the limit and not show in test report.
- 4. If the average limit is met when using a Peak detector, the EUT shall be deemed to meet both peak and average limits. And measurement with the average detector is unnecessary.



7.2 Immunity

_					
Performance Criteria of ETSI EN 301 489-3, clause 6					
Continuous phenomena applied to transmitters (CT)	 During the test, the uplink speech output level shall be at least 35 dB less than the previously recorded reference levels, when measured through an audio band pass filter of width 200 Hz, centred on 1 kHz (audio breakthrough check). At the conclusion of the test, the EUT shall operate as intended with no loss of user control functions or stored data, and the communication link shall have been maintained. In addition to confirming the above performance during a call, the test shall also be performed in idle mode, and the transmitter shall not unintentionally operate. 				
Transient phenomena applied to Transmitters (TT)	 At the conclusion of each exposure the EUT shall operate with no user noticeable loss of the communication link. At the conclusion of the total test comprising the series of individual exposures, the EUT shall operate as intended with no loss of user control functions or stored data, as declared by the manufacturer, and the communication link shall have been maintained. In addition to confirming the above performance during a call, the test shall also be performed in idle mode, and the transmitter shall not unintentionally operate. 				
Continuous phenomena applied to Receivers (CR)	 During the test, the RXQUAL of the downlink shall not exceed the value of three, measured during each individual exposure in the test sequence. During the test, the downlink speech output level shall be at least 35 dB less than the previously recorded reference levels, when measured through an audio band pass filter of width 200 Hz, centred on 1 kHz (audio breakthrough check). At the conclusion of the test, the EUT shall operate as intended with no loss of user control the The communication link shall have been maintained. 				
Transient phenomena applied to Receivers (TR)	 At the conclusion of each exposure the EUT shall operate with no user noticeable loss of the communication link. At the conclusion of the total test comprising the series of individual exposures, the EUT shall operate as intended with no loss of user control functions or stored data, as declared by the manufacturer, and the communication link shall have been maintained 				
Ancillary equipment tested on a stand alone basis	If ancillary equipment is intended to be tested on a stand alone basis, the performance criteria described in the clauses above are not appropriate, then the manufacturer shall declare, for inclusion in the test report, his own specification for an acceptable level of performance or degradation of performance during and/or after the immunity tests. The performance specification shall be included in the product description and documentation.				

Telephone: +86 (0) 755 2779 8480 Fax: +86 (0) 755 2779 8960 Page 12 of 17



7.2.1 Electrostatic Discharge

Test Requirement:	ETSI EN 301489-3				
Test Method:	EN 61000-4-2				
Discharge Voltage:	Contact Discharge: ±4kV Air Discharge: ±2kV, ±4kV, ±8kV HCP/VCP: ±4kV				
Polarity:	Positive & Negative				
Number of Discharge:	Contact Discharge: Minimum 10 times at each test point, Air Discharge: Minimum 10 times at each test point.				
Discharge Mode:	Single Discharge				
Discharge Period:	1 second minimum				
Limit:	Criteria B				
Test setup:	Electrostatic Discharge EUT 470K ohm Non-Conducted Table 470K ohm Ground Reference Plane				
Test Procedure:	Air discharge:				
	1. The test was applied on non-conductive surfaces of EUT.				
	2. The round discharge tip of the discharge electrode was approached as fast as possible to touch the EUT.				
	3. After each discharge, the discharge electrode was removed from the EUT.				
	4. The generator was re-triggered for a new single discharge and repeated 10 times for each pre-selected test point.				
	5. This procedure was repeated until all the air discharge completed				
	Contact Discharge:				
	The test was applied on conductive surfaces of EUT.				
	the generator was re-triggered for a new single discharge and repeated 10 times for each pre-selected test point.				
	the tip of the discharge electrode was touch the EUT before the discharge switch was operated.				
	Indirect discharge for horizontal coupling plane				
	 At least 10 single discharges shall be applied at the front edge of each HCP opposite the centre point of each unit of the EUT and 0.1m from the front of the EUT. 				
 The long axis of the discharge electrode shall be in the plane of HCP and perpendicular to its front edge during the discharge. 					
3. Consideration should be given to exposing all sides of the EUT.					



Report No.: 01020190400000000000				
	Indirect discharge for vertical coupling plane			
	 At least 10 single discharges were applied to the center of one vertical edge of the coupling plane. The coupling plane, of dimensions 0.5m X 0.5m, was placed parallel to, and positioned at a distance of 0.1m from the EUT. 			
	Discharges were applied to the coupling plane, with this plane in sufficient different positions that the four faces of the EUT are completely illuminated.			
Test environment:	Temp.: 24 °C Humid.: 51% Press.: 1 010mbar			
Test Instruments:	Refer to section 6.0 for details			
Test mode:	Refer to section 5.2 for details			
Test results:	Pass			

Measurement Record:					
I: Metallic parts Test points:					
rest points.	II: All plastic seams				
Direct discharge					
Discharge Voltage (KV)	Type of discharge	Test points	Observations Performance	Result	
± 4	Contact	I	A	Pass	
± 2, ± 4,± 8	Air II		Α	Pass	
==,=:,= 0	7 (11	11	A	Fa55	
Indirect discharge	7 (11	"	A	FdSS	
	Type of discharge	Test points	Observation Performance	Result	
Indirect discharge Discharge			Observation		

Remark:

A: No degradation in performance of the EUT was observed.



7.2.2 Radiated Immunity	,
Test Requirement:	ETSI EN 301 489-3
Test Method:	EN 61000-4-3
Frequency range:	80MHz to 6GHz
Test Level:	3V/m
Modulation:	80%, 1kHz Amplitude Modulation
Performance Criterion:	Criteria A
Test setup:	Camera Antenna Tower Ground Reference Plane Generator Amplifier
Test Procedure:	 For table-top equipment, the EUT was placed in the chamber on a non-conductive table 0.8m high. For arrangement of floor-standing equipment, the EUT was mounted on a non-conductive support 0.1m above the supporting plane. For human body-mounted equipment, the EUT may be tested in the same manner as table top items. If possible, a minimum of 1 m of cable is exposed to the electromagnetic field. Excess length of cables interconnecting units of the EUT shall be bundled low-inductively in the approximate center of the cable to form a bundle 30 cm to 40 cm in length. The EUT was initially placed with one face coincident with the calibration plane. The EUT face being illuminated was contained within the UFA (Uniform Field Area). The frequency ranges to be considered were swept with the signal modulated and pausing to adjust the RF signal level or to switch oscillators and antennas as necessary. Where the frequency range was swept incrementally, the step size was not exceed 1 % of the preceding frequency value. The dwell time of the amplitude modulated carrier at each frequency was not be less than the time necessary for the EUT to be exercised and to respond, and was not less than 0,5 s. The test normally was performed with the generating antenna facing each side of the EUT. The polarization of the field generated by each antenna necessitates testing each selected side twice, once with the antenna positioned vertically and again with the antenna positioned horizontally. The EUT was performed in a configuration to actual installation conditions, a video camera and/or a audio monitor were used to monitor the performance of the EUT.



Test monitor:	Traffic mode: Uplink level, downlink level, RX quality					
	Idle mode:					
	The test system shall simulate a Base Station (BS) with Broadcast Control Channel/Common Control Channel (BCCH/CCCH) on one carrier.					
	2. The EUT shall be synchronized to the BCCH, listening to the CCCH and able to respond to paging messages.					
Test environment:	Temp.: 25 °C Humid.: 52% Press.: 1 010mbar					
Test Instruments:	Refer to section 6.0 for details					
Test mode:	Refer to section 5.2 for details					
Test results:	Pass					

Measurement Record:

Frequency	Level	Modulation	Antenna Polarization	EUT Face	Observations (Performance Criterion)
	3 V/m	V H H V Rear H V Left 80 % Amp. Mod, 1 % increment V H Right	V	Front	А
			Н		А
				А	
80MHz-6GHz			Н	Rear	А
			V		Α
			Н		Α
			V		Α
			Н		Α
			V		A
			Н	Тор	А
			V		А
			Н	Bottom	A

Remark:

A: No degradation in performance of the EUT was observed.



8 Test Setup Photo

Reference to the appendix I for details.

9 EUT Constructional Details

Reference to the appendix II for details.

-----End-----