



Test Verification of Conformity

On the basis of the referenced test report(s), sample(s) of the below product have been found to comply with the harmonized standards and Directives listed on this verification at the time the tests were carried out. Other standards and Directives may be relevant to the product.

Once all product relevant  mark directives are verified in compliance, the manufacturer may indicate compliance by signing a Declaration of Conformity themselves and applying the mark to product identical to the test sample(s) if the product complies with all relevant CE mark Directives requirements.

Applicant Name & Address:	GUANGDONG BE-TECH SECURITY SYSTEMS LIMITED. No. 17, Keyuan 3 Road, Ronggui, Shunde High-Tech Zone, Foshan, Guangdong, P.R.China
Product(s) Description:	Elevator Controller
Ratings and principal characteristics:	100-240V, 50/60Hz
Model(s):	DTM
Brand name:	--
Relevant Standard(s) / Specification(s) / Directive(s):	<p>EN 300 330-2 V1.5.1 (2010-02) Electromagnetic compatibility and Radio spectrum Matters (ERM); Short Range Device (SRD); Radio equipment in the frequency range 9 kHz to 25 MHz and inductive loop systems in the frequency range 9 kHz to 30 MHz; Part 2: Harmonized EN covering the essential requirements of article 3.2 of the R&TTE Directive</p> <p>EN 300 330-1 V1.7.1 (2010-02) Electromagnetic compatibility and Radio spectrum Matters (ERM); Short Range Device (SRD); Radio equipment in the frequency range 9 kHz to 25 MHz and inductive loop systems in the frequency range 9 kHz to 30 MHz; Part 1: Technical characteristics and test methods</p> <p>EN 301 489-3 V1.6.1 (2013-08) Electromagnetic compatibility and Radio spectrum Matters (ERM); Electromagnetic compatibility (EMC) standard for radio equipment and services; Part 3: Specific conditions for Short-Range Devices (SRD) operating on frequencies between 9 kHz and 40 GHz</p> <p>EN 301 489-1 V1.9.2 (2011-09) Electromagnetic compatibility and Radio spectrum Matters (ERM); Electromagnetic compatibility (EMC) standard for radio equipment and services; Part 1: Common technical requirements</p> <p>EN 62479:2010 Assessment of the compliance of low power electronic and electrical equipment with the basic restrictions related to human exposure to electromagnetic fields (10 MHz to 300 GHz)</p> <p>Radio Equipment and Telecommunications Terminal Equipment Directive (1999/5/EC) – R&TTE article 3.1(a), 3.1(b) & article 3.2</p>
Verification Issuing Office:	Same as Legal Entity
Date of Tests:	13 August 2014 - 26 August 2014
Report Number(s):	140415039GZU-002, 003, 004 : 03 September 2014

Note 1: This verification is part of the full test report(s) and should be read in conjunction with them.

Signature: _____
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TEST REPORT

Applicant Name : GUANGDONG BE-TECH SECURITY SYSTEMS LIMITED.
 & Address : No. 17, Keyuan 3 Road, Ronggui, Shunde High-Tech Zone, Foshan, Guangdong, P.R.China

Manufacturing Site : Same as applicant

Sample Description
 Product : Elevator Controller
 Model No. : DTM
 Electrical Rating : 100-240V, 50/60Hz

Date Received : 15 April 2014

Date Test Conducted : 13 August 2014 - 26 August 2014

Test standards : ETSI EN 300 330-2 V1.5.1 (2010-02)
 ETSI EN 300 330-1 V1.7.1 (2010-02)

Test Result : Pass

Conclusion : The submitted samples complied with the above standard.

Remark :

*****End of Page*****

Prepared and Checked By:

Approved By:

Helen Ma
 Helen Ma
 Sr.Project Engineer
 Intertek Guangzhou

Strong Yao *Signature*
 Strong Yao
 Asst. Technical Manager
 Intertek Guangzhou
03 September 2014 *Date*

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1 RADIO PERFORMANCE MEASUREMENTS RESULT SUMMARY

Radio Spectrum Matter (RSM) Part of Tx				
Test	Test Requirement	Test method	Limit/Severity	Result
Permitted range of operating frequencies	EN 300 330-2: Clause 4.2.1.1	EN 300 330-1: Clause 7.3.2	9 kHz to 30 MHz	PASS
Radiated H-field	EN 300 330-2: Clause 4.2.1.2	EN 300 330-1: Clause 7.2.1.2	Table 5	PASS
Permitted range of modulation bandwidth	EN 300 330-2: Clause 4.2.1.3	EN 300 330-1: Clause 7.4.2	Table 1 and figure G.2	PASS
Radiated spurious emission	EN 300 330-2: Clause 4.2.1.4	EN 300 330-1: Clause 7.5.3.1 and 7.5.4.1	Table 8 and Table 9	PASS
Radio Spectrum Matter (RSM) Part of Rx				
Test	Test Requirement	Test method	Limit/Severity	Result
Adjacent channel selectivity - in band	EN 300 330-2: Clause 4.2.2.1	EN 300 330-1: Clause 8.1.2	Table 10	N/A
Blocking or desensitization	EN 300 330-2: Clause 4.2.2.2	EN 300 330-1: Clause 8.2.2	Table 11	N/A
Spurious radiations	EN 300 330-2: Clause 4.2.2.3	EN 300 330-1: Clause 8.3.2	Table 12	PASS
Remark:				
N/A: not applicable. Refer to the relevant section for the details.				
EN 300 330-2 in this report means ETSI EN 300 330-2 V1.5.1 (2010-02)				
EN 300 330-1 in this report means ETSI EN 300 330-1 V1.7.1 (2010-02)				
Tx: In this whole report Tx (or tx) means Transmitter.				
Rx: In this whole report Rx (or rx) means Receiver.				
RF: In this whole report RF means Radio Frequency.				
When determining the test conclusion, the Measurement Uncertainty of test has been considered.				

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Results Conclusion
(with Justification)

RE: Testing Pursuant to R&TTE Directive 1999/5/EC Performed on the Elevator Controller,
Model: DTM.

We tested the Elevator Controller, Model: DTM, to determine if it was in compliance with the relevant standards as marked on the Test Results Summary. We found that the unit met the requirement of ETSI EN 300 330-2 and ETSI EN 300 330-1 standards when tested as received. The worst case's test data was presented in this test report.

The production units are required to conform to the initial sample as received when the units are placed on the market.

3

LABORATORY MEASUREMENTS

Configuration Information

Operating Frequency	13.56 MHz
Type of Modulation:	ASK
Number of Channels	1
Antenna Type	Integral
Function:	Elevator Controller with 13.56 MHz as carrier
Power Supply:	100-240V, 50/60Hz
Power cord:	1.1 m x 2 wires unscreened AC supply cable
Support Equipment:	N/A

Notes:

The measurements had been made in the operating mode producing the largest emission in the frequency band being investigated consistent with normal applications.

An attempt had been made to maximize the emission by varying the configuration of the EUT.

4 Test Result of Radio Performance Measurements as Transmitter

4.1 Description of product classes

The equipment is divided into Product Classes depending of the antenna type used. The Product Classes shall not be confused with Receiver Categories. The different antenna types are referencing

CEPT/ERC/REC 70-03 [i.1], as implemented through National Radio Interfaces (NRI) and additional NRI as relevant.

Product Class 1:

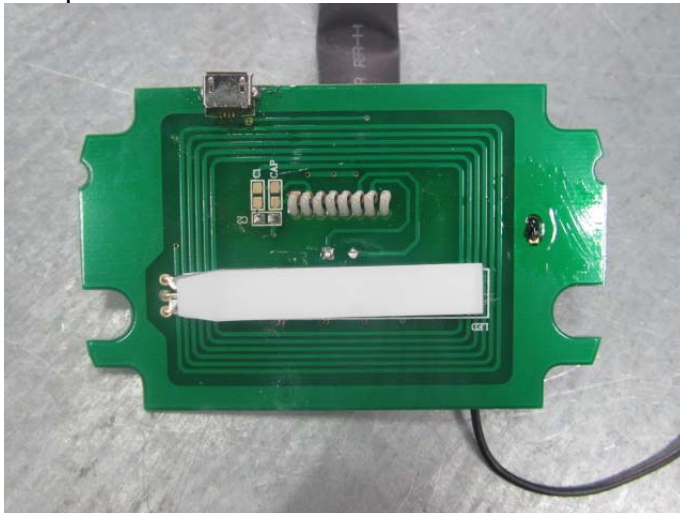
Inductive loop coil transmitter, tested with an antenna as either:

- an integral antenna (antenna type 1); or
- a dedicated antenna supplied with the equipment (antenna type 2).

The following restrictions apply to this product class:

- 9 kHz to 30 MHz frequency range;
- no customization of the antenna(s) in the field is allowed;
- loop antenna area $< 30 \text{ m}^2$; and
- the length of any antenna loop element shall be $< 4/\lambda \text{ m}$, ($< f/75 \text{ m}$, where f is in MHz) or $< 30 \text{ m}$ whichever is shorter.

The photo of the antenna of the EUT is shown as below:



The EUT belongs to Product Class 1.

4.2 Test conditions

4.2.1 Normal conditions

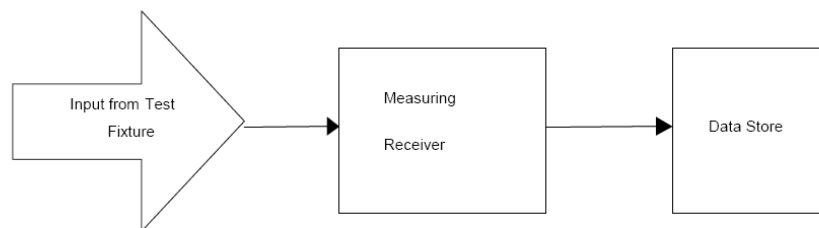
Ambient:	Temperature:	+15°C to +35°C
	Relative humidity:	20% to 75%
	Press:	1010 mbar
Power supply:	AC:	100-240V AC, 50/60Hz

4.2.2 Extreme conditions

Ambient:	Temperature:	Manufacturer's declared operating temperature: 0°C to +60°C	
Power supply:	AC:	100-240V AC ±10%	
		Nominal test voltage	230V AC
		Lower extreme test voltage	90V AC
		Upper extreme test voltage	264V AC

4.3 Permitted range of operating frequencies

- Test requirement: EN 300 330-2:Clause 4.2.1.1
 Test Method: EN 300 330-1:Clause 7.3.2
 Operation Status: Continuous transmitting mode.
 Test Procedure:
1. The occupied bandwidth of the EUT, e.g. the minimum and maximum output frequencies at which the permitted spurious and out-of-band emission levels are exceeded due to intentional emission from the radio transmitter shall be measured using the method shown in below figure.



2. The measuring receiver was a spectrum analyser which was appropriate to perform the intended measurement of the EUT.

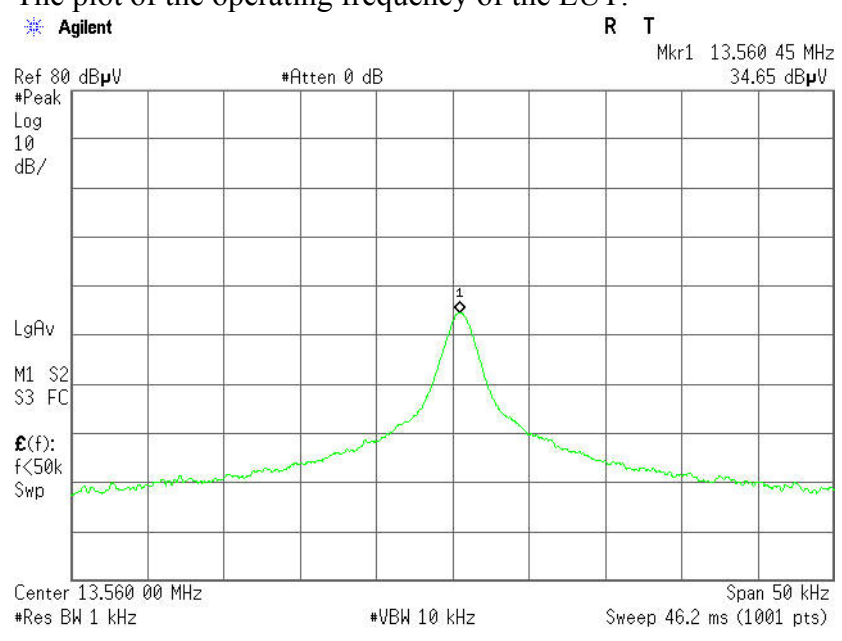
4.3.1 Used Test Equipment

Serial No.	Description	Model No.	Manufacturer
US44300399	Spectrum Analyzer	E4446A	Agilent

4.3.2 Test Result and Data

The operating frequency of the EUT for intentional emissions is 13.56 MHz, it is within the permitted frequency rang 9 kHz to 30 MHz. Outside the permitted range of operating frequencies the unintentional emissions was reduced to the spurious emission limits. Refer to RSE test data for further details.

The plot of the operating frequency of the EUT.



4.4 Radiated H-field

Test requirement: EN 300 330-2: Clause 4.2.1.2

Test Method: EN 300 330-1: Clause 7.2.1.2

Operation Status: Test EUT in transmitting mode.

Test Procedure:

1. The measurements of the transmitter radiated H-field was made on an semi-anechoic chamber. Any measured values were at least 6 dB above the ambient noise level.
2. The H-field produced by the equipment was measured at standard distance of 10 m.
3. The H-field was measured with a shielded loop antenna connected to a measurement receiver. The measuring bandwidth and detector type of the measurement receiver was in accordance with below table.

Frequency: (f)	Detector type	Measurement receiver bandwidth	Spectrum analyser bandwidth
9 kHz ≤ f < 150 kHz	Quasi Peak	200 Hz	300 Hz
150 kHz ≤ f < 30 MHz	Quasi Peak	9 kHz	10 KHz
30 MHz ≤ f ≤ 1 000 MHz	Quasi Peak	120 kHz	100 kHz

NOTE: For the measurement of the ranges 6,765 MHz ≤ f ≤ 6,795 MHz and 13,553 MHz ≤ f ≤ 13,567 MHz, the measurement bandwidth has to be 200 Hz respectively 300 Hz.

4. The equipment under test operated with normal modulation
5. The measurements were made under normal and extreme conditions.
6. For measuring equipment calibrated in dBμV/m, the reading should be reduced by 51,5 dB to be converted to dBμA/m.

4.4.1 Used Test Equipment List

Serial No.	Description	Model No.	Manufacturer
100088	EMI TEST RECEIVE	ESCI	ROHDE&SCHWARZ
1029	Loop Antenna	CBL6143A	A, R, A
N/A	Temp. / Humidity Meter	PLA-1030/B	VICTOR

4.4.2 Test Result and Data

Transmitting Mode with Modulation, 13.56MHz				
Conditions		H-field Level (dBuA/m)	Measuring Bandwidth (Hz)	Limit in Table 5 (dBμA/m)
Temperature	Voltage(V)			
25°C	V _{AC nom} 230V	-11.97	300	60
0°C	V _{AC min} 90V	-11.32		
	V _{AC max} 264V	-11.54		
+60°C	V _{AC min} 90V	-12.25		
	V _{AC max} 264V	-12.38		

4.5 Permitted range of modulation bandwidth

Test requirement: EN 300 330-2: Clause 4.2.1.3

Test Method: EN 300 330-1: Clause 7.4.2

Operation Status: Test EUT in transmitting mode.

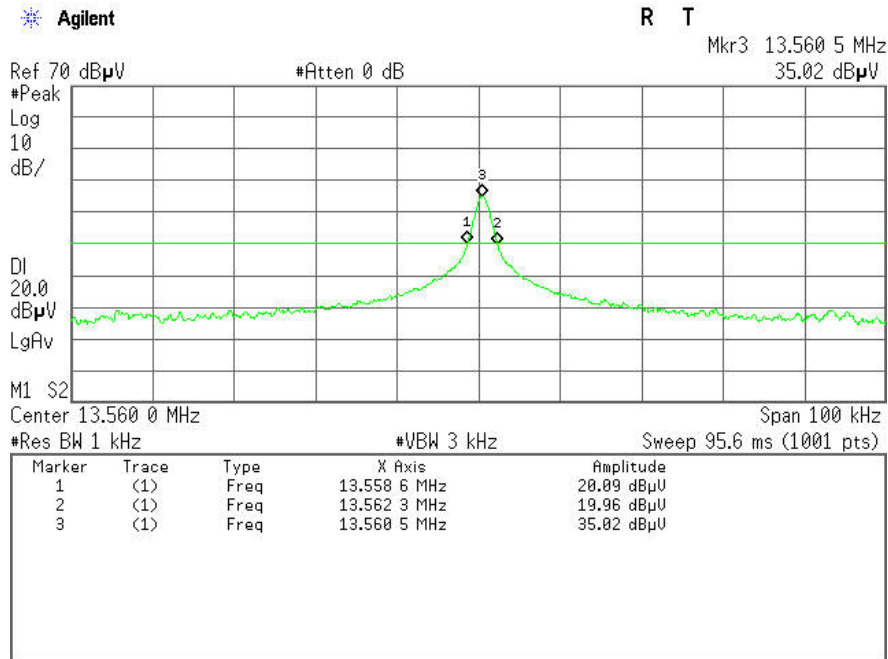
- Test Procedure:**
1. The transmitter was connected to a test fixture. The RF output of the equipment was connected to a spectrum analyser via a 50 Ω variable attenuator.
 2. The transmitter was operated at the nominal carrier power or field strength measured under normal test conditions. The attenuator was adjusted to an appropriate level displayed at the spectrum analyser screen.
 3. The transmitter was modulated with standard test modulation. The internal modulation was used.
 4. The output of the transmitter, with test fixture, was measured by using a spectrum analyser with a resolution bandwidth appropriate to accept all major side bands. The power level calibration of the spectrum analyser then be related to the power level or field strength. The calculation would be used to calculate the absolute level of the sideband power.
 5. The spectrum analyser's span was sufficiently wide enough to ensure that the carrier and all its major side bands were captured.
 6. The frequency of the upper and lower points, where the displayed power envelope of the modulation including frequency drift was equal to the appropriate level defined in “Permitted range of operating frequencies” was recorded as the modulation bandwidth.
 7. The measurements were made during normal and extreme test conditions. During extreme test conditions, both extreme temperature and voltage applied simultaneously.

4.5.1 Used Test Equipment List

Equipment No.	Description	Model No.	Manufacturer
US44300399	Spectrum Analyzer	E4446A	Agilent
EM080-05	EMI receiver	ESCI	R&S

4.5.2 Test Result and Data

The plot of the modulation bandwidth of the EUT.



Test Conditions		Bandwidth Measured (MHz) (15 dB below the carrier)	
Temperature (°C) Humidity (%)	Voltage (AC)	F _L	F _H
T _{nom} 25°C	V _{AC nom} 230V	13.559	13.562
T _{min} 0°C	V _{AC max} 90V	13.558	13.562
	V _{AC min} 264V	13.558	13.563
T _{max} +60°C	V _{AC max} 90V	13.560	13.562
	V _{AC min} 264V	13.559	13.562

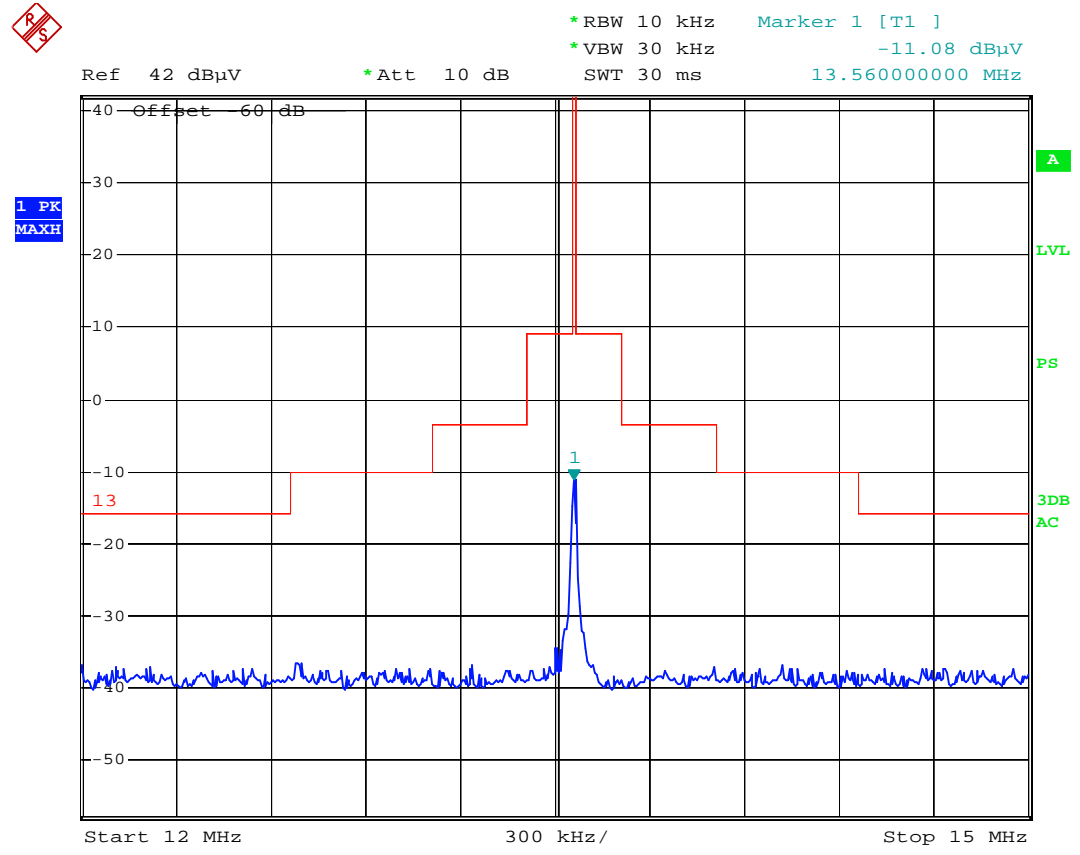
Permitted rang

	Frequency (MHz)	Assigned Frequency Band Limit (MHz)	Result
Lowest F _L (worse)	13.558	13.553	Pass
Highest F _H (worse)	13.563	13.567	Pass

Note:

1. F_L: Lowest frequency of the power envelope.
2. F_H: Highest frequency of the power envelope

The plot of the LF RFID systems of the EUT.
N/A: Since the operating frequency of the EUT is 13.56 MHz. The EUT does not belong to LF RFID systems. ($0,119\text{MHz} \leq f < 0,135\text{MHz}$).
The plot of the spectrum mask of the EUT.



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4.6 Spurious Emissions (Transmitter)

- Test requirement:** EN 300 328 clause 4.3.6
Test Method: EN 300 328 clause 5.7.5
Operation Status: Test The EUT in transmitting and standby mode.
Test Procedure: Radiated measurement for this kind of products which be used for integral antenna equipment.
Test Frequency Range: 9 kHz to 1 GHz

4.6.1 Used Test Equipment List

Equip No.	Description	Model No.	Manufacturer
US44300399	PSA Series Spectrum Analyzer	E4446A	Agilent
1123808	Amplifier	AM-1604-3000	MITEQ
1029	Loop Antenna	PLA-1030/B	A, R, A
EM030-01	3m Semi-Anechoic Chamber	9×6×6 m3	ETS•LINDGREN
EM030-02	Control room for 3m Semi-Anechoic Chamber	4×4×3 m3	ETS•LINDGREN
EM031-02	EMI Test Receiver (9 kHz~7 GHz)	R&S ESR7	R&S
EM033-01	TRILOG Super Broadband test Antenna (30 MHz-3 GHz)	VULB 9163	SCHWARZBECK
EM031-02-01	Coaxial cable	/	R&S

4.6.2 Test Result and Data

9 kHz to 30 MHz

Frequency (MHz)	Measured field (dBμA/m)	Limit of Table 8 (dBμA/m)	Margin (dB)
0.0000156	-40.64	24.6	-65.24
0.0000351	-26.47	21.1	-47.57
0.0000478	-41.91	19.7	-61.61
0.0000694	-42.88	18.1	-60.98
0.1500000	2.80	14.8	-12.00
2.6574000	-13.98	-7.8	-6.18
8.8662000	-20.41	-13.0	-7.41

30 MHz to 1 GHz

Polarization	Frequency (MHz)	Measured field (dBm)	Limit of Table 9 (dBm)	Margin (dB)
V	67.800	-59.7	-54.0	-5.70
H	54.240	-56.7	-54.0	-2.70
H	67.800	-58.0	-54.0	-4.00

Notes:

1. Negative sign (-) in the margin column signify levels below the limit.
2. Other emissions found were at least 10 dB below the limit.
3. Measurement Uncertainty: 4.87dB for 30MHz-1GHz.
4. For standby mode, there were no emissions found above system measuring level (at least 10 dB below the limit)
5. The scan frequency is from 9 kHz-30 MHz, the frequencies listed in the table are the worst case.

5 Test Result of Radio Performance Measurements as Receiver

Receiver Classification, Table 2 of EN 300 330-1.

Receiver categories	Relevant receiver clauses	Risk assessment of receiver performance
1	8.1, 8.2 and 8.3	Safety critical SRD communication media; i.e. for devices serving systems where failure may result in a physical risk to a person.
2	8.2 and 8.3	Function critical SRD communication media; i.e. when a failure to operate correctly causes loss of function but does not constitute a safety hazard.
3	8.3	Non-critical SRD communication media whose failure to operate correctly causes loss of function which can be overcome by parallel means.

Note 1: With reference to the present document, manufacturers are recommended to declare classification of their devices in accordance with table 2, as relevant. In particular where an SRD which may have an inherent safety of human life implications, manufacturers and user should pay particular attention to the potential for interference from other system operating in the same or adjacent bands.

The EUT (Rx part) belong to Class 3.

5.7 Adjacent Channel Selectivity-in band

Not applicable, since the test applied to categories 1 receiver, Please refer to EN300 330-2 Clause 4.2.2.1.

5.8 Blocking or Desensitization

Not applicable, since the test applied to categories 1 or 2 receiver, Please refer to EN300 330-2 Clause 4.2.2.2.

5.9 Spurious Emissions (Receiver)

Test requirement: EN 300 330-2: Clause 4.2.2.3

Test Method: EN 300 330-1: Clause 8.3.2

Operation Status: Test in receiving mode

Test Procedure: Radiated measurement for this kind of products which be used for integral antenna equipment

5.9.1 Used Test Equipment List

Equip No.	Description	Model No.	Manufacturer
US44300399	PSA Series Spectrum Analyzer	E4446A	Agilent
1123808	Amplifier	AM-1604-3000	MITEQ
1029	Loop Antenna	PLA-1030/B	A、R、A
EM030-01	3m Semi-Anechoic Chamber	9×6×6 m3	ETS•LINDGREN
EM030-02	Control room for 3m Semi-Anechoic Chamber	4×4×3 m3	ETS•LINDGREN
EM031-02	EMI Test Receiver (9 kHz~7 GHz)	R&S ESR7	R&S
EM033-01	TRILOG Super Broadband test Antenna (30 MHz-3 GHz)	VULB 9163	SCHWARZBECK
EM031-02-01	Coaxial cable	/	R&S

5.9.2 Test Result and Data

9 kHz to 30 MHz

Frequency (MHz)	Measured field (dBμA/m)	Limit of Table 12 (dBμA/m)	Margin (dB)
9.6423000	-41.67	-24.77	-16.90
17.9404000	-43.32	-25.00	-18.32

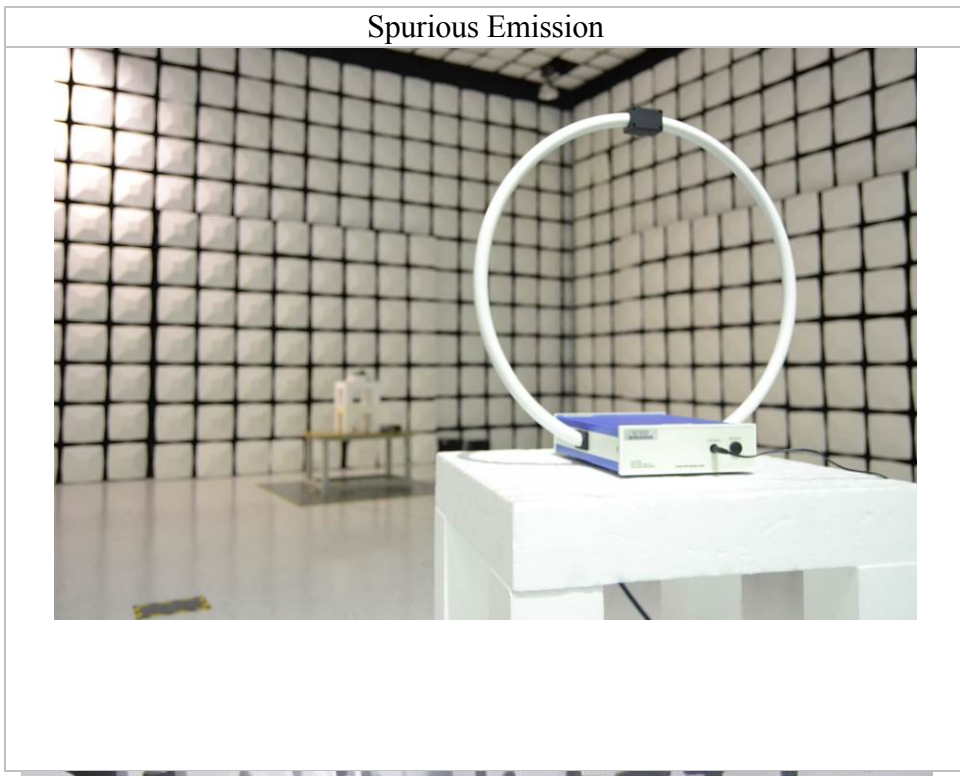
30 MHz to 1 GHz

Polarization	Frequency (MHz)	Measured field (dBm)	Limit of Table 13 (dBm)	Margin (dB)
V	849.840	-61.8	-57	-4.8
V	922.120	-61.4		-4.4
V	941.880	-61.1		-4.1
H	718.280	-65.2		-8.2
H	999.800	-62.4		-5.4

Notes:

1. Negative sign (-) in the margin column signify levels below the limit.
2. Other emissions found were at least 10 dB below the limit.
3. Measurement Uncertainty: 4.87dB for 30MHz-1GHz.
4. For standby mode, there were no emissions found above system measuring level (at least 10 dB below the limit)
5. The scan frequency is from 9 kHz-1 GHz, the frequencies listed in the table are the worst case.

6 Appendix I - Photos of test setup



7 Appendix II - Photos of EUT







